

On Scientific and Hallachik Thought

At the outset I would like to make clear the intent and scope of this essay. This paper is not an introduction to scientific or Hallachik methodology, on the contrary it is intended only for one who has given careful attention to the former and has immersed himself in the latter. My objective is to use a brief overview of scientific methodology and its advances as a comparative tool to clarify some fine points regarding the proper application of the methodology we commonly refer to as the Brisker Derech. Both of these topics are extremely broad and deep and can only be touched upon in a short paper but I hope that I have given enough that the intelligent reader will be able to think more deeply into the topic and see my points.

In the scientific method every particular is viewed as an expression of a universal principle not as a separate localized reality. An apple falling from a tree to the ground is not an apple-ground phenomenon but an interaction between their underlying substances. We look for the simplest explanations of the widest range of events, not for a complex patchwork of explanations each fitting a single event. Thus explanations based on the particulars of apple and earth are rejected in favor of explanations based on the universal matter each possesses. This method naturally leads to simpler principles that unify more and more particular cases. As Einstein and Infeld state in the *Evolution of Physics*, (which is an excellent book on the subject of scientific thought and methodology), “[The scientist] certainly believes that, as his knowledge increases, his picture of reality will

become simpler and simpler and will explain a wider and wider range of his sensuous impressions (P. 31).” Thus physics has evolved from Aristotle’s ideas of different types of motion to Galileo’s unified theory of motion, from the idea of the existence of different weightless substances, namely, heat, electricity (two kinds) and magnetism to a unified theory of energy. What is the basis for this approach? It is the belief that all of the universe is composed of fundamental building blocks under the influence of fundamental forces with all of the observable phenomena being their various expressions. It is this search for what lies beneath that demands a universal law of nature, the law of the fundamentals, with each advance striking deeper. (The fact that all of this should be intelligible to the human mind is another assumption of science worthy of consideration but is beyond of the scope of this paper).

This general belief is the basis for science, but each scientific era has its own philosophy, a particular view regarding the overall nature of the universe (I am using this term in the sense employed by Einstein and Infeld in *The Evolution of Physics*). For instance, from Galileo through Newton the prevailing philosophy was that of the existence of a purely mechanical universe, the belief that, "All phenomena can be explained by the action of forces representing either attraction or repulsion, depending only upon distance and acting between unchangeable particles (ibid. p. 65).” These philosophical ideas are the most universal ideas; they are not about particular elements of the universe but are about the underlying nature of the universe or about what type of universe we live in. Being the most universal ideas this philosophy of science guides all further development and allows for only certain kinds of theories. Given a mechanical view of reality only certain types of explanations are acceptable; a quantum

explanation would have no place in that philosophical regime. This is true in every branch of science, from psychology to biology to economics, the overall philosophical idea, be it Freudian, Darwinian or Keynesian will guide and mold any particular theory. "Philosophical generalizations must be founded on scientific results. Once formed and widely accepted, however, they very often influence the further development of scientific thought by indicating one of the many possible lines of procedure (ibid. p. 51)."

Breakthroughs are those theories that shift our thinking from the entrenched philosophy to a new one. This opens up new approaches to analyzing phenomena, avenues of inquiry previously unrealized, and indicates experiments not previously contemplated. It suggests new ways of looking at things and the unification of phenomena formerly regarded as distinct. It is a gate of knowledge, an opening to formerly hidden vistas and perspectives and the beginning of a new intellectual environment. At the heart of the breakthrough is the ability to look at events or phenomena that present problems under the prevailing view and recognize the possibility that another view might make things yet simpler. Thus we move from a particular case or set of problems to a breakthrough which in turn leads to new understanding about other particular cases and eventually to a new philosophy. "Successful revolt against the accepted view results in unexpected and completely different developments, becoming a source of new philosophical aspects (ibid p. 51)." This continues until problems reveal an inadequacy in the new philosophy and the process repeats.

Something interesting occurs near the end of a philosophic regime. The idea that was an intellectual boon to science at its inception, allowing for new freedoms of thought,

can become in its decline an intellectual shackle forcing every phenomenon to conform to its terms. To the conventional thinkers it is no longer a tool of new insights and fresh ideas rather it becomes an ideology of its own. The loyal rally around it and craft creative if not brilliant ways of fitting the unruly phenomena into the old terms no matter how tenuous or far fetched. Ironically, this is the opposite approach of the methodology that spawned the very idea they are defending. Whereas the original breakthrough started with a set of problems *from which* were derived a new universal, this method starts with a universal and insist on particular kinds of solutions which are in line with the philosophy. Eventually a new breakthrough is needed to once again reduce the complexity created.

The scientific process is one of moving from the concrete to the abstract, from the particular to the universal, from a strange chaotic world to a system of laws governing outcomes in a clearly predictable way. Thus scientific thought attempts to relate particulars to universals but the question is where do these universals stem from, or what is the starting point in this process?

We could say that there are three types of relationships between the universal and the particular in scientific thought. First, the particular presents a genuine difficulty that defies a simple explanation under the existing theoretical framework and philosophy, such as difficulties regarding the speed of light in classical physics. This leads to a new theoretical framework which offers a natural explanation of the phenomenon. The ideas flow from the bottom up, from the particular phenomena to the universal. A fresh, unaffected look at the case suggests viewing it on its own terms and not with any preconceived notions, such as that of an absolute space and time. This is the breakthrough

stage. Second, the new universal is used to explain other problems which were until now either unresolved or whose answers lacked simplicity. Fresh approaches and possibilities open up based on the new theory and a new philosophical view begins to develop. To the extent that this new approach offers simple solutions to a greater range of events and yields new discoveries its veracity is corroborated. This is a stage of tremendous growth in scientific knowledge where a new tool to probe the depths of the universe has been discovered and its limits are being tested. During this phase the revolutionary idea becomes clarified and strengthened and the philosophical shift is complete. Third, the new view has become an entrenched orthodoxy and is used as a basis to posit new realities in order to allow difficult cases to conform to the prevailing philosophy. This is a strict top down approach, one of taking the universal as fact and forcing every particular into its image. This approach does not look to see what unimaginable wonders might be hidden within the difficulties but rather tries to remove the problems with artful devices to fit with the old view. This is done by positing new substances, forces or phenomena that resolve the difficulty and preserve the framework at the price of positing otherwise unfounded realities. A brilliant example of this is the theory to support the view that heat is a substance in face of the problem that heat is apparently created by friction (unlike substances which are conserved, not created from nothing). The solution was that the heat substance is there all along but the rubbing changes the specific heat of the object, or the ability of the object to conduct heat, and it only feels hotter (ibid. p. 41). This view persisted until a crucial experiment showed no change in specific heat.

In sum, the essence of the scientific methodology is to view the particulars as an expression of universals. The breakthrough develops from a careful analysis of the events

themselves, free from preconceived notions, which leads to new theories regarding the laws governing the events. This is a fact oriented analysis honestly seeking clues from the phenomena themselves, intellectually probing the depths in the hopes of finding the most natural and fitting theory without regard to the prevailing conventions or norms. If a theory is found that challenges accepted premises it must then be tested in other areas to verify its truth, it must prove its usefulness by simplifying the old and opening new discoveries unimaginable under the former framework. It is not enough to merely be a restatement or more convenient expression of the known it must demonstrate that a new deeper view of reality has been uncovered. Einstein and Infeld's description of the development of the field theory illustrates this point. "The concept of field can now be put to a much more severe test. *We shall soon see whether it is anything more than a new representation* of the acting force (ibid. p. 133)." The ability to describe certain known phenomena more easily does not prove the validity or reality of the existence of a field of force, further investigation was needed. After an experiment suggested by the theory yielded positive results they continue, "We have the right to regard the field as something much more than we did at first. The properties of the field alone appear to be essential for the description of phenomena; the differences in source do not matter. *The concept of field reveals its importance by leading to new experimental facts* (ibid. p. 133-134)." Thus we must start with the facts and follow the possibilities suggested by them in the hope that a new approach can be developed that will lead to a more accurate view of the universe, revealing truths which were previously hidden. It is the creativity of the scientist that drives the development of science. "To raise new questions, new possibilities, to regard old problems from a new angle, requires creative imagination and

marks real advance in science (ibid. p. 92).” The creative scientist comes to the problem with an ability to view things from fresh perspectives; he sees old phenomena in a brand new light, as indications of new concepts that shatter the normative view. It is really a process of starting over, of viewing the facts with an intellectual freedom to follow them to their own logical outcome that produces the advances. The opposite approach, to start with a view and a preconceived notion of the theory you want, and then to posit ways for the events to conform to that theory leads to stagnation.

Since we employ a scientific method in Hallachik analysis are there similarities in the relationship between the universal and the particular in Hallachik thought? As in science there must first be a basis for theoretical analysis. Part of the Brisker Derech is a statement about the foundation of Hallachik analysis, an idea that Hallacha is not a list of particulars, but a categorical system open to intellectual analysis relating the particulars to universals. Each area of Hallacha has its own unique character and philosophy (in the scientific sense) or fundamental concepts of the Sugya which will guide the analysis. For example, one would not expect Hallachik formulations in Nezikin to be like those in Taharos, even though the methodology, or approach to understanding, is the same. Additionally, the three types of relationships outlined above have expression in Hallachik thought as well. First, the careful analysis of the facts leads to a breakthrough that uncovers an underlying idea or universal in the Sugya; second, that leads to further analysis of related issues explaining other problems, opening other possibilities and relating seemingly unrelated issues; and third, there are the forced Sevaras of those desperate to save their overall theory in a Sugya.

But there are key differences in the nature of the systems of science and Halacha. Science studies the universe we live in and looks to find the most fundamental causes of what exists. The world is not rocks and trees and stars but fundamental elements driven by fundamental forces. In short, science is the quest to find out what really exists and it assumes that all existences share a common fundamental. Halachik analysis on the other hand studies the Torah, a system of laws and ideas with a specific purpose, that of perfection for mankind. In what way then are they similar? Although primarily a purpose driven system, purpose must ultimately resolve itself into structure; particular forms and materials must be selected to achieve the given purpose. Any system of purpose must ultimately put forth entities to carry out its goals, to give existence to its own ideas, and in a legal system, these must exist in an absolute and objective form without regard to the fulfillment of the given purpose. For instance, safety is the purpose of traffic laws but safety itself is not the law, rather with safety in mind a legislature selects specific rules regulating conduct, operators and equipment which must be obeyed at all times even if safety is not an issue in a particular case, as in the case of a red light in the middle of nowhere with no one around for miles. If laws only had to be kept when the individual thought it necessary then no system of law would exist. We see from this that while the purpose put forth the structure it is not the substance of the structure or part of the law; the structure exists even in its absence, and the law must be defined on its own terms, for instance in terms of what traffic signals, intersections and vehicles are, not in terms of what safety is. We see then that what the systems of science and Torah have in common is that they both contain entities of objective structures, one as the totality of the system and the other as a means with which to accomplish its purpose. It is in this

secondary aspect of the system of Torah that the scientific method of analysis enters into the study of Torah.

This distinction has an important impact on the two studies. The most basic difference is that while both processes look for causes there are two causes to speak of in Hallacha - the purpose or reason for its existence, and the way or form in which it exists. The former has no counterpart in science and is not part of the scientific method. There is a study of that in Torah but it is a speculative science not a Hallachik analysis and has no part of the Brisker Derech. As was said before, Hallachik structures must exist without regard to purpose, just like natural law, and any use of purpose in its analysis is foolish. Aside for the fact that the purpose for many Mitzvos is hidden from us, and yet there analysis is open to us, even if we knew the purpose for sure, it would not be part of the analysis because the purpose itself has no Hallachik form, it is the reason for the form (in fact one purpose could be met in many different ways, there is no specific form demanded). This is illustrated by the question of whether Mitzvos need Kavanah on the part of the performer. The view that they do not means that even though the person had no intention for the action of the Mitzva, much less the benefit of the Mitzva, e.g., where he lifted a Lulav to move it out of the way, he is none the less Yotzeh. If the purpose was part of the Mitzvah this would not be possible. Even the side that disagrees only requires Kavanah to do the *action* of the Mitzva in order to relate the person to the action properly, that is why the Ran says in Rosh Hashanah that eating Matzah does not require Kavana according to that Shita because since he is intrinsically related to the Mitzva through the enjoyment, he does not need the Kavanah to relate him (see רב יוסף דוב הלוי (סולוביציק שעורים לזכר אבא מרי ז"ל כרך א דף מד). Therefore, structure and purpose must be

kept separated in terms of the analysis of Hallacha. It is true that a Mitzva takes a form that is suitable to produce the desired result but to say, for instance, that one is not Yotzeh Shema if he reads it mindlessly because the purpose is עול מלכות שמים would be only very loosely true. עול מלכות שמים is not the Mitzvah itself, if it were the actual reading of the Parsha would not be necessary, only an internal acceptance. Hallachikally he is not Yotzeh because this Mitzvah demands a certain kind of Kriya, one with an accompanying mental action of cognition not just a physical action of reading (even if you hold Mitzvos Lo Tzrichos Kavanah). Definitively it could be said that the Reading of Shema is a reading to one's self and as such needs the person to both verbalize or perform the act of reading and to be מקבל the statement in his mind. This completes the particular form of Kriya demanded by the Mitzva. This also could explain the Kiyum of hearing what you say by Kriyas Shema as a full expression of that activity. It is a specific form of reading selected by this Mitzvah that can be structurally defined without recourse to the reason. Naturally this formulation is in line with achieving the purpose but to define the goal of עול מלכות שמים as the structure itself is shoddy, lazy and imprecise thinking. This deficiency is not overcome by expanding the scope, by saying that an entire area of Hallacha is ruled by a certain reason and trying to show how each Hallacha within it is caused by this reason. This still is not a definition of the Hallachik structures themselves and is a mistake of substituting purpose for structure. Furthermore, even with a given purpose what is to say that every Hallacha in the Inyan must be a manifestation of that purpose? It is entirely possible that other, extraneous reasons are in play determining individual Hallachos. For instance, in the Din of צרעת הבית the Cohen orders the resident to empty the house before he checks for the presence of צרעת. The Mishna explains that

this is because חס התורה על ממון ישראל, meaning to say there is no reason in terms of נגעים for this interruption before the Cohen checks the house but it comes from a general concept. The gemara in Succah explains that the Lulav could not be a thorny branch because דרכיה דרכי נועם. Thus sometimes various reasons exert their own influence on the structure. Furthermore, as Rambam says there will always be details that are not related to any specific reason other than, for instance, that there must be a number, to look for reason here he considers foolish. In truth only after an exhaustive study and careful analysis of the Hallachik structures, after we know what it is that we are dealing with, may we speculate about the purpose. This is an intrinsic limitation of the Derech as a tool of Hallachik explanation and any criticism that the Derech does not incorporate טעמים into the definitions is akin to complaining that the eye, while the most powerful tool we have to perceive reality, does not tell us how something tastes. There is no claim that Brisker Derech is the only method of studying Torah, only that it is the methodology of Hallachik Analysis. To demand that it incorporate that which is not part of Hallachik structure is a demand beyond the subject itself and could only result in a distortion of the method. As stated in Chovos Halevavos and the Moreh Hanevuchim, using any faculty in a way that it is not designed for destroys the faculty itself, and in our case corrupts the methodology. Not only will those ideas be unfounded but it will damage your ability to properly define in general.

Another difference between the two systems is in how the structures relate to one another. The structures of the system of science are thought to be uniform in their most basic components which are the substantial causes, the real stuff of the universe. This is why science strives for a unified theory of everything. But is such a theory the goal of

Halachik analysis? Science, as the study of what *is*, looks for deeper causes of the manifest universe. Science has gone from atomic elements to subatomic particles to quarks and beyond, each step hoping to find the most fundamental building blocks of everything we see. The hope is to have a complete theory that explains all phenomena, showing that they are all different expressions of the same fundamentals. This is only possible because the universe is one existence and we assume that all existence has the same fundamental cause. Halachik entities are not structures made up of smaller more fundamental universal entities, they are separate structures created by גזירת הכתוב, not natural expressions of fundamental existences. They exist owing to their utility and specific need. This is why in Hallacha each Inyan is like its own system with its own philosophy or types of Halachik structures. Of course, all Hallachos unify into one system, but the unification is in terms of purpose, that they all work together for the same ultimate purpose, not in any fundamental existence underlying all Halachik structures. This does not contradict the idea of a universal Derech. A Derech recognizes that there is an overall character to the system of Hallacha, that the entities are defined in certain ways and must take on certain kinds of forms. The idea that a Mitzvah can be formulated in terms of the גברא or הפצא is an idea about how or in what form Mitzvos exist.

Before we leave this topic let me clarify what I mean by the Torah being unified in terms of purpose. While there is an ultimate purpose in Torah, that does not mean that every Halacha has the same purpose. Perfection is not a matter of repeating the same thing in different ways. Each Mitzva has its own objective and together the result of all of them is to lead a person to perfection (the Mitzvos not being perfection itself). Each Mitzva has its own limited purpose which has a place in reaching the ultimate goal. Many

Mitzvos keep a person from harm, not impart a perfection. This is a Derech Hashem that Rambam derives in the Morah from the path Bnei Yisroel took from Mitzrayim. Hashem led them on an indirect route because they would not be able to bear the challenges of the direct route. Thus, sometimes a Mitzva can help avoid a pitfall on the road to perfection. The Hallachik structure only implements the immediate purpose. For instance, one cannot perfect himself if he is dead but the Mitzva of לא תעמד על דם רעך is defined in terms of saving the person's life not helping him perfect himself. (When two lives are in danger a method of קדימה is employed to decide who is saved first. But this is based on objective criteria of worth with regard to the system of Mitzva and to the community, not the structure of the Mitzva itself. For instance, if one did not follow קדימה the Isur would be in violating קדימה not רעך על דם רעך). It is important to note that even when there is a *Hallachik* purpose we can not necessarily employ it in our Hallachik definitions. It is the manifest purpose of the Mikdash to produce a Kiyum Avoda but in analyzing the particulars that lead to a Kiyum Avoda we must look no further than the particulars themselves. For instance the מזבח is Mikadesh even a Pasul Korban, one that can have no Kiyum Avoda. If we were to define the מזבח only as a tool of the ultimate purpose of a Kiyum Avoda then why would the מזבח be Mikadesh that which cannot fulfill the purpose? If the whole purpose is to bring about a Kiyum Avoda and that is not possible with a Pasul Korban, the מזבח should not act upon it. The proper definition is in terms of the מזבח on its own terms, as a type of כלי שרת that performs a specific Hallachik function of being Mikadesh not as a tool of Kiyum Avoda. There is a subtle but important difference. The system of Mikdash generates many Hallachik entities, each with their own limited definition, which, when used together properly can produce a Kiyum Avoda.

But since they are independent Hallachik entities they exist apart from the overall purpose of Kiyum Avoda and this demands that the מִזְבֵּחַ will be Mikadesh without regard for the ultimate goal of the design. If the מִזְבֵּחַ was only seen in terms of the objective of Kiyum Avoda it would not exist as its own entity and would not be Mikadesh a Pasul. This is true in any design, for example, an automobile is designed as a mode of transportation utilizing its many components in an organized way, but the engine will turn even if the wheels are broken.

Another difference is in the focus of the analysis. Whereas science is focused on finding the universal among the particulars and only values the particulars as means to the universal, Hallachik analysis is singularly concerned with the particular. The goal is always to know what the particular Mitzva is and what the Hallachik obligations are, not some generalized idea. The Hallachik analysis, therefore, is a more limited, local analysis than the scientific. Additionally, since each Hallachik institution is the product of Gzayras Hakasuv and not a different permutation of some underlying existence, in other words, since each Hallachik institution has to a certain extent its own cause, the particulars must play a greater role. To be sure, there are universal entities and concepts in Hallacha like Mechitzos and Grama, but even then their particular applications are different owing to the nature of the subject. Thus the rules for using Mechitzos are different by Shabbos, Succah and Kilayim, and Grama by Nezikin is different from Grama by Shabbos. The Hallachik analysis focuses on the nature of Mechitza as it exists by Shabbos as opposed to Succah and Kilayim not on the universal Mechitzah. We seek to understand the unique requirements of each field to explain the different ideas of Mechitza by each. For instance, Kilayim only needs separation between the Minim and

one Mechitza, an instrument of separation, is sufficient whereas the other two require a specific Makom. It is the new idea of Makom that demands the extra Mechitzos to delineate it. Additionally, Shabbos only needs a separated Makom and a sloping hill is considered a unified Mechitza isolating the Makom, but Succah needs a structure of Mechitzos and a slope will not do (it is true that a Migu exists by Succah and Shabbos, correlating the Mechitzah for both but that is a separate Halachik principle of Migu stating, in specific cases, that the same place is not both qualified and unqualified by Mechitzos at the same time. This does not change the fact that the Halachos of how Mechitza qualifies the area are different for both). Of course, a knowledge of the idea of the universal is necessary since each particular is a species of it but we need it only to better understand our particular. In this sense the analyses are opposite, Science values the particular for the universal and the Brisker Derech goes to the universal in order to properly understand the particular. An interesting example of this is the process of going from an Av Melacha to a Tolada, as explained in the Perush Mishnayos of Rambam and in the Yad. The Av is the very activity done in the Mishkan, for instance making flour. To get to the Tolada we take the Av and ask what it is a particular of. In this case it is a particular form of breaking large bodies into smaller ones. This is the step of universalizing or abstracting from the particular. We then say wherever that general activity is used in a process other than the one of the Av it is a Tolada, in our case shaving gold to make gold dust. It is a process of abstracting from the particular to know what category it exists in and then identifying other members of its class. This is the universalizing of the Derech, finding what category a particular exists within to understand it better.

The main difference is in the exact process of moving from the particular to the universal. The physical world we see is only visible because a certain type of light is reflected to our eyes. This is a crude instrument and only a fool would think that it captures all physical existences. Science tries to go beyond the senses to understand what really exists. Thus the analysis leads from manifest objects to their smaller unseen parts, which are the more universal building blocks. These existences are probed by experiment and understood by theory. Hallacha is somewhat different; it is more a process of abstraction than looking for subcomponents. The Derech takes a particular of Halacha and asks what category it is a particular of, to what category does it owe its existence or what is the nature of its existence. The Derech states that Hallacha is not a catalog of particulars rather the particulars exist as representations of larger categories and it is these categories that we are in search of, exactly as we have done for Avos Melachos. Both are looking for the real existence beyond the particular but science looks for its substantial cause, what it is made up of, and the Derech looks for its qualitative cause, or definition, what kind of existence it really is. The greatness of Rav Chaim was not in his encyclopedic mastery of the facts, his בקיאות, which is not חכמה, nor in his tremendous creativity, which could lead to imaginative speculation, rather in his knowledge of Hallachik categories and his ability to look at a problem and realize which categories apply. This is a skill gained and an intuition honed from a realization of the nature of Hallachik formulation and an intimate familiarity with categorical thinking. With this approach he was able to utilize both his strengths of בקיאות and creativity to shine a powerful light on any subject and uncover the underlying Dinim or Hallachik categories that the Sugya revolves around. For instance, when Rav Chaim said that according to the

Rambam the Mitzva of זכירת יציאת מצרים is not a קיום בפני עצמו but is a קיום קבלת עול מלכות שמים of Kriyas Shema, he gave us a new way to look at both. Now זכירת יציאת מצרים is a particular of a greater activity of קבלת עול מלכות שמים and must be viewed according to that nature, furthermore the Mitzva of קבלת עול מלכות שמים is now shown to be given to different expressions, via the essential ideas of אחדות and through הזכרת יציאת מצרים וגאולת ישראל, which expresses Hashgachas Hashem over Klal Yisroel (see הרב יוסף דוב הלוי ז"ל כרך א דף יד (סולוביציק שעורים לזכר אבא מרי ז"ל כרך א דף יד). This is an idea that resolves the question of why Rambam does not count זכירת יציאת מצרים as a separate Mitzva with a careful definition which in turn sheds a new light on the whole Inyan of Kriyas Shema. It is through this process of definition, of understanding the nature and cause of a particular (in this case זכירת יציאת מצרים is a Din in and is caused by the Mitzva of קבלת עול מלכות שמים) that a Sugya opens up. This is not a restatement of facts but a careful analysis of the facts placing them in their proper setting.

Another important distinction is in the development of the two systems. Science is constantly discovering new facts of which earlier thinkers were completely unaware. New ideas are the hallmark of progress and no criticism can be lodged in exceeding the knowledge of the past generations. But Halacha was complete when it was given and we have in fact lost knowledge over time. Thus our task is, as Rav Chaim said, not to be מחדש but only to explain what the Rishonim have said. This is not a limitation on the process of analysis itself only a limitation on its reach and a test of the validity of the results. It is not possible, as the Rav said, for someone to say they have discovered a new Mitzva that the גר"א did not know about. We must always look to the Rishonim for a basis for what we say and be able to demonstrate that our ideas are an explanation of

what is said if we want to be sure that it is truly part of Torah. The hallmark of the Derech is to only say what we can see from the facts, anything more being speculation and not definition. An abstraction or definition is justified only when the facts demonstrate that the particular is part of a category otherwise there is no right to posit such a thing. An amazing example of this is in the area of טעם כעיקר. The Gemara in Pesachim asks where the principle of טעם כעיקר is found in Torah. The Gemara proposes that from בשר וחלב, where the Isur is both Minim together and the milk is only present in the form of טעם, we should learn that where a substance (עיקר) is needed the presence of its טעם is equivalent to the presence of the substance. The Gemara says that we cannot learn from there because the whole Isur is a חידוש and we cannot universalize from a חידוש. But what is the חידוש? The Gemara says if it is because they are both Heter and together make Isur, כלאים is the same and טעם כעיקר should be learned. (The Gemara concludes the חידוש is that it is only Asur through בישול but that is not relevant for our discussion). But what does the fact that one other case exists help us to learn טעם כעיקר in general, maybe they are both unique? The Gemara wants to universalize from the particular of בשר וחלב that טעם is like the עיקר, but in order to do that we must be able to say that בשר וחלב is a *type* of Isur of two Heter Minim, and the milk is present in the form of טעם, via a general principle. If, however, this were the only case of Heter and Heter, there would be no justification for positing such a category and all we could say is that בשר וחלב is unique in all of its particularities; it is an Isur of flavored meat, not of two Heter entities together. Only after establishing with כלאים that there is another case of Heter and Heter is there justification to say that a category of Heter and Heter exists, and only then can we say that the טעם is simply a universal method of representing the Heter,

and not a unique particular of the Isur בשר והלב itself. The method of abstraction requires the positing of a category, but without Hallachik indications of that category there is no justification in positing one. This is Okum's razor. Here unifying the two Isurim under one category is a simplification of two particulars and justified, but to look at בשר והלב alone and deem it a particular of a category in order to derive טעם כעיקר is unjustified. In fact that would add complexity by creating a category with only one member and adding a principle of טעם כעיקר. Unless we can demonstrate that our idea is necessary to explain the facts it is nothing more than speculation and conviction is unjustified. In fact, the sense of conviction in these ideas is corruptive to the mind, confusing soft conjecture with solid definition. A clear crisp definition may not be the final theory in the Sugya but it will always be true, in so far as it is necessary and puts the phenomena into categorical terms. Its significance may yet be unknown but it may lay the groundwork for deeper ideas to expand our knowledge of the Din or it may lay in wait for a breakthrough, maybe in a different area, which will reveal its meaning. But if a speculative, unfounded idea is foisted upon us it will remain as an end in itself closing off further analysis. This is the maxim of Rav Chaim that you don't die from a question. Better to leave a question open for another day than to force an answer and close it off prematurely. Just as in science, the next breakthrough in Hallachah is to be found in new ways of looking at intractable problems and progress is halted by the hollow satisfaction of having given an answer. (Sometimes possibilities have to be tried in order to see where they will lead and may start out speculative but lead to a better understanding. These intermediary steps must be regarded for what they are, and be abandoned if they do not pan out).

A word on beauty. One basic distinction in the studies of science and Hallacha is the manner of proof in each. Experimentation is at the heart of the scientific process and offers the possibility and very often the reality of crucial experiments that lay to waste whole hosts of erroneous theories while giving proper conviction in others. What sort of proof is offered in Hallacha? The Gemara investigates Hallachik positions by subjecting them to the facts (experiments) of Mishnayos and Braysos. But often a position cannot be refuted. In the absence of such refutation where does the Hallachik thinker turn to for his conviction? How does he select from the many possibilities? A much touted barometer is the beauty of the idea, and many scientists have spoken about the beauty of the theory as a source for their conviction. But we must ask why is beauty a mark of truth? Is this some coincidence or is there a logic behind it? Also, and most importantly, what do we mean by beauty, is all beauty the same or only certain beauty? Certainly a beautiful landscape or sunset is not more true than an ugly or plain one. The beauty of the idea that we are talking about is the beauty of simplification, of a unification that exhibits a deep wisdom. There is a wonder and appreciation in seeing that what lies behind the obvious and the apparent works with an elegant, unexpected simplicity and wisdom. It is the beauty of a system of simple principles that generates and unifies a complex set of phenomena that has attracted great minds as a mark of truth because this is in fact the objective of abstract thinking, to move from the many concrete particulars to their deeper causes. The beauty and joy is from finding exactly what one has been searching for in a clear yet surprising way. It is the beauty of order out of chaos, of realizing that unfounded notions had crept into our thinking, distorting and obscuring our view, creating apparent contradictions, inconsistencies and coincidences, and that their removal allows us to

ascend new heights to see the full breadth and depth of the phenomena. In short it is a beauty and appreciation of חכמה. This sense is employed in Hallacha as the primary criteria of truth as Ramban explains in his introduction to Milchamos Hashem. The Hallachik thinker must survey the totality of the Sugya and choose between different solutions to the problems each with their remaining difficulties. This is a process of שקול הדעת, a weighing in the mind based on the knowledge of Hallachik categories and methodology and the thinker's own sense of which solutions are most in line with beauty, consistency and חכמה. When Tosafos asks a question on Rashi, for instance, they are well aware of the possible answers, but are pointing out the difficulties that Rashi will have to deal with. Every Shita will have difficulties and the real Machlokes is about which is the smoother and more consistent approach based on their שקול הדעת.

I have seen many try to impress upon others a different beauty of their ideas as a basis for acceptance, this is more in the nature of Drush than Hallacha. To be sure there is a place for Drush but it is a completely different art from Hallachik definition. Much more liberties are taken in the speculative art of Drush and a slight turn in language may be the foothold for a rich and elaborate proposition. Not so in Hallacha, every idea must be shown to be necessary and firmly based in the facts of the Sugya. Drush is essentially philosophical ideas tied to a source while Hallachik definition is the explanation of the Hallachik structures themselves. To put forth an idea with scant Halachik justification but a natural attraction as the basis of a Hallachik Shiur is to confuse the two and come away with neither. In reality this approach relies not on the beauty of Hallachik structure but on the impressive feat of tying together many particulars by association, of creating a grandiose thematic scheme from an idea that leapt fully formed from the mind of the

Maggid. There is no justification or support for the idea other than that it can be used as an organizational device and it does not offer a deeper understanding of the Hallachik structures, in fact many times mental gymnastics and artificial suppositions are required to make everything fit. This is really the antithesis of proper methodology, making superficial connections without ever precisely defining any structure. The Shiur is a tour de force of בקיאות and imagination but not definition. There is a seductive appeal of feeling that the area has been covered by finding a commonality to encompass all particulars, but they do not show a definition of the Hallachik structure. This is not be confused with the methodology employed in a topical Shiur, like the Rav's Yortzeit Shiurim. To the casual observer they may seem similar but their differences could not be greater. As was mentioned before, regarding science, the creativity in Hallacha is found in the ability to view the subject from new viewpoints. Sometimes it is necessary to lay a foundation or to open a new view in order to see the problems from a different angle. Many times the proper category of the Hallachik definition is hidden because we are not viewing the Inyan or Sugya properly and a general concept is needed to focus our attention on the relevant facts. Only after that preparation can we find the correct definitions. But the general idea is always developed from the facts of the Sugya and shown to be a natural idea of the Inyan. Its validation is in the ability to use it further for precise Hallachik definition. Indeed, often times Shiurim begin with many wide ranging questions but return to an in depth analysis of one case to uncover the proper Hallachik category of a Sugya, which is a true breakthrough opening up whole new ways of looking at the Sugya. One clear definition in a Rav Chaim can guide the further study of many Gemaras by showing the foundational concepts in a Sugya. The difference between the

two approaches can be summarized with an allegory. Suppose two men intend to gain knowledge of the art of healing. One studies all the symptoms and categorizes them according to their appearances looking for patterns to determine which remedies are most effective for which ailments, while the other studies the causes of the symptoms and the health of the body thereby gaining an insight into what could bring the body back to an equilibrium. While they both will have success in healing, the approaches are completely at odds. One seeks patterns in the manifest effects and the other seeks an understanding of the causes. One only gains a superficial knowledge while the other gains a deeper understanding of health and sickness.

In sum the careful practitioner of the Derech comes to the Sugya with a deep familiarity with and knowledge of Hallachik categorical thinking but refrains from formulating any ideas until the facts of the Sugya bring them to mind or warrant them. He is wary of positing any unfounded, preconceived ideas into the Sugya but he is constantly on the alert for clues to the underlying theory. He defines what he sees to the depth that he can, happy to gain as much truth as possible, cautiously leaving the rest for another time. He shuns vague notions that do not yield a deeper understanding and clings to the words of the Rishonim for guidance.