The Effects of Volitional Factors on the Processes of Perception and Abstraction

Marian Dolores Robinson

Loyola University Chicago

Recommended Citation

https://ecommons.luc.edu/luc_diss/9

This Dissertation is brought to you for free and open access by the Theses and Dissertations at Loyola eCommons. It has been accepted for inclusion in Dissertations by an authorized administrator of Loyola eCommons. For more information, please contact ecommons@luc.edu.

Creative Commons License

This work is licensed under a Creative Commons Attribution-Noncommercial-No Derivative Works 3.0 License.

Copyright © 1947 Marian Dolores Robinson
THE EFFECTS OF VOLITIONAL FACTORS ON
THE PROCESSES OF PERCEPTION
AND ABSTRACTION

By

Sister Marian Dolores Robinson, S.H.N.

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR THE DEGREE OF DOCTOR
OF PHILOSOPHY IN LOYOLA UNIVERSITY

June
1947
VITA

Sister Marian Dolores Robinson was born in Astoria, Oregon, November 23, 1916.

She was graduated from Star of the Sea School, Astoria, Oregon, June, 1932.

The Bachelor of Arts degree with a major in Latin was conferred by Marylhurst College, Marylhurst, Oregon, August, 1937.

She studied Psychology at Gonzaga University, Spokane, Washington, during the years 1938-1943.

The Master of Arts degree with a major in Psychology was conferred by Loyola University, Chicago, December, 1944.
TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>CHAPTER</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>Experimentations on the higher thought processes - Lack of research and experimentation on will - Clarification of terms; distinction between volition and conation - Purpose of the dissertation.</td>
<td></td>
</tr>
<tr>
<td>II. THE NATURE OF VOLITION</td>
<td>16</td>
</tr>
<tr>
<td>Will and intellect in Thomistic Psychology - Distinctions concerning will - Natural and deliberate volition - Elicited and commanded acts of will - Acts of will and voluntary actions - Actus hominis - Actus humani - Non-volitional responses.</td>
<td></td>
</tr>
<tr>
<td>III. THEORIES OF WILL</td>
<td>48</td>
</tr>
<tr>
<td>IV. EXPERIMENTS ON WILL</td>
<td>145</td>
</tr>
</tbody>
</table>
VI. INTROSPECTIVE ANALYSES AND CONCLUSIONS . . . . 222
   The Ambiguous Figures - Ambiguous Words -
   The Similarities - Logical Statements -
   General Summary and Conclusions.

APPENDIX . . . . . . . . . . . . . . . . . . . . . . . . . 257
   Statistical data - Conclusions.

BIBLIOGRAPHY . . . . . . . . . . . . . . . . . . . . . . . . . 262
# LIST OF TABLES

<table>
<thead>
<tr>
<th>TABLE</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>RATE OF INVOLUNTARY AND VOLUNTARY SHIFTS ON THE AMBIGUOUS FIGURES</td>
</tr>
<tr>
<td>II</td>
<td>SCORES FOR &quot;ASSOCIATE&quot; IMAGES (A) AND RANDOM IMAGES (R) IN THE INVOLUNTARY AND VOLUNTARY TESTS</td>
</tr>
<tr>
<td>III</td>
<td>INSIGHT SCORES FOR THE SIMILARITIES</td>
</tr>
<tr>
<td>IV</td>
<td>OBJECTIVE EFFECTS OF VOLITIONAL FACTORS ON SENSORY AND RATIONAL PROCESSES</td>
</tr>
<tr>
<td>V</td>
<td>AVERAGE SCORES AND CORRELATIONS</td>
</tr>
</tbody>
</table>
### LIST OF FIGURES

<table>
<thead>
<tr>
<th>FIGURES</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 JASTROW’S DUCK-RABBIT</td>
<td>208</td>
</tr>
<tr>
<td>2 THE GRECIAN URN</td>
<td>208</td>
</tr>
<tr>
<td>3 THE VARIABLE STAR</td>
<td>209</td>
</tr>
<tr>
<td>4 THE NECKER CUBE</td>
<td>209</td>
</tr>
<tr>
<td>5 THE SCHRODER STAIRCASE</td>
<td>210</td>
</tr>
</tbody>
</table>
CHAPTER I
INTRODUCTION

The past several decades, more than any others, have witnessed the fruitful and rapid growth of experimental psychology. To strengthen many of the established metaphysical concepts of theoretical psychology, we now have objective laboratory data. Within a comparatively short time, experimentalists have made innumerable and invaluable contributions to the field of psychology. For a time, these investigators confined their researches to the realm of sensory phenomena, and for various reasons. On the one hand, were the modern sensists who denied the very existence of any but sensory processes. On the other hand, the dualists, moderate and otherwise, were dubious as to the possibility of any experimental procedures with the rational processes. It is true that our immaterial powers defy any attempt of direct measurement. These powers, infinite in potentialities, cannot be reduced to any quantitative units or subjected to materialistic confines. However, in their attempt to observe the differentiations between sensory and non-sensory phenomena, a
particular group of experimentalists, the Wurzburg School, took the initial step in the experimentation of higher thought processes.

Oswald Külpe, as a result of his experiments, arrived at conclusions diametrically opposed to the dogmatic sensism of the Wundtian School. When his discoveries were corroborated by those of Marbe, Watt, Messer, and others, a reactionary movement was initiated. Experimental investigations had proved to Külpe and his followers that something above and beyond sensations and images existed in the thought processes. The pure awareness found in the introspections of the thought processes was not identifiable with the image.

That this distinction must be made in much the same sense that we distinguish between physical phenomena and our consciousness of them; that, in other words, the old doctrine of an inner sense with the involved idea of a distinction between the reality of consciousness and objectivity must now have its opportune renewal in the domain of psychology—this is the principal result that I would draw from my experiments.¹

With these discoveries originated the first formal experimentation of the higher thought processes. Previous to Külpé, Ebbinghaus had given the famous pioneer experiments on memory. But most commentators think that he did not designate memory as a higher thought process in Külpé's sense. The movement received further impetus from the performance, elsewhere, of similar experiments which led to like conclusions. Woodworth, Binet, and Thomas V. Moore had offered plausible convictions deduced from results in accord with those of the Würzburg School.

Dr. Moore's work on abstraction has become a classic among experiments on the higher thought processes. It was one of the first of its kind and gave evidence that psychology would profit much by further research in this field. The experiment is remarkable, not only because it established a precedent, but also because it shows considerable ingenuity in presenting objective data which so clearly represent the stages involved in intellectual abstraction.¹

Following the example of these pioneers, experimentalists produced an abundance of data obtained in research work on sensation, perception, memory, and intelligence. But amid all

¹"The Process of Abstraction", pp. 73-197.
this progress, there has been a noticeable void, namely, a great lack of experimentation and research in the domain of rational appetition. The writers of will-psychology have prefaced their writings with this complaint together with a plea to others for further participation in their work. The paramount importance and vital significance of the will has always been recognized by scholastic writers, and many others as well. Great philosophical battles have been waged over the problems of the will. An adequate solution of all these problems may have to await the beatific vision.

One of the foremost reasons for neglect in this type of research is the erroneous interpretation which is so frequently attached to volitional activities. Modern dynamism is steeped in materialism. The will is confused or identified with instinctive tendencies, drives, or biological urges. No distinction is made between rational and sensory appetition; all appetition is rooted in man's physical nature. Thus, a wealth of psychological research has been devoted to instincts and the various other types of sensory appetite. Will, in the status of its true capacity and nature, is ignored or denied. Wundt's psychology of volition is typical of the many prevalent materialistic theories.
Feeling is not independent of volition, as alleged; impulse is not a process which can be distinguished from will, still less opposed to it; and desire is not the antecedent of will, but rather a process which only appears in consciousness when some inhibition of voluntary activity prevents the realization of volition proper. Finally to define will as the capacity of choice is to render any explanation of it impossible from the outset.\(^3\)

Confusion, dissension, and faulty conclusions have resulted from such psychological theories; and consequently progress oftentimes has been greatly impeded.

For others, the will, because of its dynamic and immaterial nature, seemed too much of an enigma to warrant any positive results from experimental attempts. Other faculties, even among the rational processes, seemed more promising to the experimentalist. Analyses of volitional activities, which are so complex and evasive, seemed beyond the reach or capability of most psychologists. "Many men were attracted to other fields of research through natural preference, or because they were hopeful of more tangible results, or because they were unwilling to cope with the specific difficulties inherent in

the task of investigating the Will. In more recent times, however, these same volitional characteristics have proffered a challenge to research workers; encouraging results obtained from their works have set an example to others.

In their attempts to study instincts and drives, materialists themselves have been confronted by their inability to categorize the truly volitional powers of man. Avoiding the term will in its full connotation, they have resorted to the use of force, energy, or deterministic impulse. Their very investigations have led them to the inevitable discovery of a power capable of opposing these bodily urges, if man so proposes. They offer no acceptable explanation of these supra-instantive manifestations, and merely speak of will in terms of some dominant instinct or tendency.

One outgrowth of the materialistic interpretation of volitional activities is the existing confusion and controversy regarding terminology. As in the case of most disputed subjects, clarification of terms will greatly simplify the problem of solution. Ambiguity of meanings has oftentimes

---

been the source of prolonged philosophical and psychological dissensions. Perhaps the same might be true in will-psychology.

Recently, the term conation has come into popular use and is a common source of confusion. The meanings of conation are almost as varied as the authors who have used the word. For this reason we will attempt to establish a few clarifications and to distinguish between volition and conation.

For the materialist, volition means conation. Urges, impulses, drives, and instinctive tendencies constitute the various forms of conation. Volition conceived in any other sense is unknown to materialists, since they admit of no higher appetitive level. Foremost among this group are the mechanists and determinists who hold that man is primarily a creature composed either of conditioned reflexes or of instincts and desires. Conation, in this sense, signified any form of biological energy; volition is a specific type of impulse or energy. "Will, in principle, is organized energy. Man's will differs from the energy of a gravitational system only in a phenomenological sense." McDougall places volition alongside of instinctive forces and defines it as "the

supporting or re-enforcing of a desire or conation by the cooperation of an impulse excited within the system of the self-regarding sentiment." Conation and volition differ in degree, not in kind. "It may be fairly claimed, I think, that we can vaguely understand the way in which all volition may be accounted for as a special case of conation, differing from other conations, not in kind, but only in complexity." E. H. Wild, in his otherwise excellent experiment on conation and cognition, falls into the common error of mistaken identity of terms. A comprehensive study was made of the influences of conation on cognition in muscular work, in efficiency of motor-performance, in learning, in reproducing processes of memory, and in performances on intelligence tests. By way of explanation, the author explicitly states that conation is attention; and in so doing, changes the entire significance of his experiment.

Attention then is conation; it changes the intensity of cognition and a change in determinateness follows on this. These two changes then constitute the variation in clearness of cognition of the sentient produced by

---

7 Ibid., p. 243.
variation in attention. 

sometimes such attending is sus­
tained by an effort of will, which 
derives from the intricately orga­
nized system of conative impulses 
comprising the whole personality.

Attention is neither conation nor volition, though it is 
perhaps the process most frequently identified with both. 
However, analysis reveals the close relationship existing bet­
weeen volition and attention. Attention is an act itself which 
directs our cognitive processes toward some object or activity. 
When attention is voluntary, the object in question is also the 
object of will. The nearest approach which St. Thomas makes 
to this present-day concept of attention is in his discussion of 
intentio. "The end, considered as a thing, and the means 
to that end are distinct objects of the will. But in so far as 
the end is the reason for willing the means, they are one 
and the same object." This notion is similarly applicable 
to the object of voluntary attention. However, at other times, 
attention is drawn by external stimuli without any volitional 
direction. "Neither is attention merely a volition, or act of

---

8 "Influences of Conation on Cognition", The British Journal of 
1927, p. 150.

9 Ibid., p. 149.

10 The Summa Theologica in Basic Writings of Saint Thomas 
Aquinas edited by Anton C. Pegis. New York: Random House, 
1944, I-II, xii, a.4, ad 2um.
will. On the contrary it is that upon which the conative act is exerted. It is a cognitive energy directed by the will to an existing experience. 11

Some scholastics have strongly opposed the use of the word conation in any sense. They have branded the term as a tautology, and therefore as superfluous for use in scientific studies.

Modern psychologists speak of conation, conative impulses, conative urges, conative tendencies, and so forth, as conscious data distinguishable from cognitive states, on the one hand, and from feeling states, on the other . . . The division is . . . wrong on two scores: first, because it is redundant; second, because it is unbalanced. The redundancy arises from a violation of the principle of the minimum, since feelings and conations are both appetitive phenomena. The lack of balance arises from the fact that, even on the assumption that feeling here means sensitive appetition and conation means rational appetition, there should be a corresponding dichotomy of cognition into sensitive and rational cognition. 12

Others have used conation in the same sense as appetition, admitting of a further subdivision. Conation would then be either rational or sensory. Thus, conation refers to any of the affective processes as distinguished from the cognitive processes.

Dr. Aveling, Stevanovic, and other British experimentalists of King's College, London, have used conation in this sense, but have carefully distinguished between conation and volition.

In general, conation is the striving by which we seek to satisfy our wants, to attain the ends at which our native and acquired dispositions aim, to carry out the purposes of our will. Such striving may be pursued upon different levels, high or low, of activity; it may be persistent and sustained or fitful and easily abandoned.13

Dr. Aveling describes volition as a particular type of conation, as conation of a higher level. Referring to volition, he says,

In general, it may be laid down as a principle that the human organism tends to strive towards any end desired. Strivings of this sort presupposes previous

experience of such ends, or a knowledge of it reached by way of the principle of correlate-eduction; and such conation as is involved in the process differs from that exhibited in instinctive reactions precisely in this, that it is a conation guided by conscious reinstatement or mental fabrication, of an end, together with a tendency towards it. In either case, however, the determination of the organism to the end desired consists radically in a connate relation between the organism and the end, as is also the case in instinctive actions.¹⁴

Experimental studies carried out by others have affirmed the distinctions as defined by Dr. Aveling. In conducting a research on frustration of will-acts and conation, one author found that introspective reports revealed that such differences exist.

Aveling has by experimental work revealed that there is a clear-cut distinction between conation and volition--between striving and willing. This distinction is supported by the data obtained in our work. The introspective reports . . . show that there is a real phenomenological difference be-

between the experience of conation and that of volition.\textsuperscript{15}

An experimental study on judgment has also produced evidence that there are distinct and essential differences which must be considered when referring to volition and to conation. Conation of a physical kind was evident in cognitions on the sensory level, while it was noticeably absent during the tasks requiring abstraction and eduction of relations.

\ldots the educing of relations and correlates, abstracting and universalizing, as long as the fundamentals are given, tend to be permeated with less intensive or very little conation if any. All conation, with regard to cognitional processes, appears to be connected with the reproduction of items and their clarification rather than with educing relations and correlates, in other words, with operations on the lower, rather than the higher level of consciousness.\textsuperscript{16}

For these writers conation is a term used to indicate general feelings of striving, seeking, and affective activities; while volition is the movement towards a definite goal.


which has already been intellectually perceived. Thus volition is a form of conation only in the sense that it is an affective process rather than a cognitive process. Conation is never identified with volition.

In our work, the term conation is used in the same sense as that adopted by Dr. Aveling, Father McCarthy, and others in their experiments on volition and conation. Thus conation refers to the strivings of the organism in a broad extent of the term; volition refers, specifically, to the movements of a rational nature, as we shall see more minutely in the following Chapter. As Wyatt reminds us, "we must carefully avoid confusing physical effort with psychic initiative."\(^{17}\) Conation then is the "experience of effort."\(^{18}\)

That volition influences very many internal mental processes is a fact known to all from experience. The light of intellect becomes operative by means of volitional activity. St. Thomas Aquinas, and Aristotle before him, have always recognized the impotence of cognitive powers without will. "Intellect shows the way and will supplies the driving power. Intellect is the light and will the force of life."\(^{19}\) Differ-

\(^{18}\)Ibid.
ences between the logical thought as directed by will and the revery of day dreams are commonly recognized. Nevertheless, by means of objective experiments, we can gain a more intimate knowledge of the quality of these volitional effects. While their existence is unquestionable, it is the purpose of experimental data to enhance the evidence already at hand. Our purpose then is not to reveal an undiscovered principle, but merely to observe and to investigate the quality and nature of certain volitional effects. Since the higher processes themselves are not quantifiable, the most valuable results of experiments involving these activities are largely qualitative ones. However, by means of timing responses, temporal differences can also be observed.

Experimental procedures do not constitute the sole purpose of this thesis. Invaluable work has already been accomplished in will psychology. In order to profit by the methods of others and data already secured, we will attempt to review the classic experiments on volitional activities and the outstanding theories of will as well.
CHAPTER II

THE NATURE OF VOLITION

Will is a dynamic source of many other mental processes. Though it is true that a thing must first be perceived before it is desired, it is also true that it must be possessed in order to be actually enjoyed.

Whence also intellectual natures have a like disposition to good as apprehended through an intelligible form, so as to rest therein when possessed and when not possessed to seek to possess it; both of which pertain to will.

Will in us belongs to the appetitive part, which, although named from appetite, has not for its only act to seek what it does not possess but also to love and delight in what it does possess.

Intellect and will are complementary powers, the one fructifying the other. While intellect perceives the good, will moves toward and possesses the good. The act of will is incomplete and barren without the aid of intellect. St. Thomas

---


2 Ibid., I XIX, ad. 2um.
frequently refers to the complementary interaction between intellect and will.

The good considered under the notion of good, i.e., as appetible, pertains to the will before pertaining to the reason. But it pertains to the reason considered under the notion of the true before pertaining to the will under the notion of good; for the will cannot desire a good that is not previously apprehended by reason.

The nature of will itself is closely related to the kind and degree of knowledge from which it arises. Thus, in man we find that there are as many appetitive powers as there are cognitive powers. The movements of sensitive appetite spring from our sensory cognitions, while voluntary acts follow intellectual motives. Human acts are the end results of this complementary interaction of intellect and will; for such acts are the outcome of voluntary decisions and choices which, in turn, presupposed intellectual perception and evaluation. Will is active only because it has been stimulated toward an object presented by the intellect. Previous evaluations are necessary before any desire is aroused on the part of will. There can be no willing, no final possession of an object.

---

3 Ibid., I-II, xix, a. 3ad. lum.; xi, a.1, ad. 2um, ad 3um.
without previous knowledge of the object; and there can be no knowledge unless there is implicit willingness to know. Commenting upon St. Thomas's affirmation of the inner relationship between intellect and will Rousselot says,

He looked upon will as a tendency towards the good in general, and consequently he had to find in knowledge the determining principle for each concrete human action. Seeing that man's ideal was to realize himself intellectually, it followed that the only way he had of acting voluntarily was by recourse to intellectual motives. Will is something derivative: it springs from mind and acts for mind. And just as liberty has its root and source in the amplitude of intellect's proper object (Ex hoc enim quod ratio deliberans se habet ad opposita, voluntas in utrumque potest), so each particular human act must be traced to an intellectual perception and voluntary decisions take their rise therein.4

Because intellect and will are fundamentally of the same nature and rooted in the essence of the soul, their operations are interdependent.

The will moves the intellect as to the exercise of its acts since even the true itself, which is

---

the perfection of the intellect, is included in the universal good as a particular good. But as to the determination of the act, which the act derives from the object, the intellect moves the will; for the good itself is apprehended under a special aspect as contained in the universal true. It is therefore evident that the same is not moved and moved in the same respect. 

The cooperative relationship between intellect and will is perhaps even more evident in an act of choice. Evaluations and counsel are made by intellectual cognition; and will supplies approval and makes the final choice. It is clear that all such operations are ultimately dependent upon the joint operation of both intellect and will.

While both of these faculties are rational and immaterial and therefore essentially alike, they differ specifically from one another by their modus operandi. The difference in operation arises from the diversity of aspects existing in all objects. Thus, the proper object of will differs from that of intellect. "What is apprehended and what is desired are the same in reality, but differ in aspect; for a thing is apprehended as something sensible or intelligible, whereas it is desired as suitable or good. Now, it is diversity of aspect

5 The Summa Theologica, I-II, ix, a.1, ad. 3um.
in the objects, and not material diversity, which demands a diversity of powers. 6

Will resembles instincts, drives, and impulses in so far as all move towards an object. Both will and sensible appetite are in the same genera of potencies, i.e., both are appetitive in character and are aroused to action by some form of good. But the differentiation between these two kinds of powers is an unbridgable one, for it is a difference arising from the essential nature of each. In this distinction lies the crux of the dissensions and controversies which have existed since the very beginnings of philosophical inquiries. The everlasting thirst of man for satisfaction has never yet been quenched by the possession of material goods or by indulgence in sensual pleasures. Above and beyond these tendencies, the supra-sensuous power of will seeks a higher good, an object proper to its own nature. In this very insatiability of man's desires, there is ample proof that some power within him strives for an infinite good. Upon this necessary distinction rests the whole of will psychology. To understand anything about will, we must necessarily first consider its rational

6Ibid., I, lxxx, a.1, ad. 2um.
nature. Materialists discuss will in the sense of a dominant instinct or tendency, and in doing so distort the whole purpose of human psychology. St. Thomas explicitly sets forth this distinction as an integral factor in the entire field of psychology.

We must needs say that the intellectual appetite is a distinct power from the sensitive appetite. For the appetitive power is a passive power, which is naturally moved by the thing apprehended. Therefore the apprehended appetible is a mover which is not moved, while the appetite is a moved mover. Now things passive and movable are differentiated according to the distinction of the corresponding active and motive principles, for the motive must be proportionate to the movable, and the active to the passive. Indeed the passive power itself has its very nature from its relation to its active principle. Therefore, since what is apprehended by the intellect and what is apprehended by sense are generically different, consequently, the intellectual appetite is distinct from the sensitive.

Concerning will itself there are further distinctions to be made. The term will designates the spiritual faculty which tends toward some object intellectually perceived as good.

Some scholastics prefer to include in their definition the

---

7Ibid., I, LXX, a.2, c.
twofold aspect of will. "... all internal acts of the will involve a conscious 'inclination' toward an object intellec-
tually apprehended as good, or a conscious 'aversion' from an
object intellectually apprehended as evil."\(^8\) St. Thomas
himself refers frequently to the negative aspect of will in
his various discussions on the object of volition and also in
his dissertations on the problem of evil. "Accordingly, the
will is referred both to good and to evil, but to good by
desiring it, and to evil, by shunning it. Therefore the
actual desire of good is called will (volition), meaning
thereby the act of will ... the shunning of evil is better
described as nolition; and so just as volition is of good, so
nolition is of evil."\(^9\)

Evil is an absence of some good; and therefore aversion
involves at least a negation of a potential attraction. For
evil is the absence of a reality, a reality which is proper to
a thing and ought to be present in it. Evil is none other
than a defect, a lack of something, a privation of a required
good. If the reality which is lacking in the case of evil
were present, a good would result towards which the will would

\(^8\)Hubert Gruender. *Experimental Psychology*. New York and
\(^9\)The *Summa Theologica*, I-II, viii, a.1, ad. 1 um.
strive. Aversion, then, implies attraction to the opposite good.

To shun evil is definitely a movement of will and not merely an attitude or state of mind, as is the case of certain sentiments. One who is in sorrow is concerned with some evil which has befallen him and which has caused his particular state of mind. However, there may be no volitional activity involved in sorrow, while an act of will which is directed toward the avoidance of evil necessarily involves a specific operation of will.

Volition pertains to all appetitions on the rational level. Thus, desires of a rational kind are volitions; so also are decisions, determinations, choice, and the like. In


brief, will refers to the rational appetitive faculty; and volition, to the acts of this faculty.

Volitions differ according to their objects. The will tends toward universal good of necessity and because of its nature, while the movement of will towards some particular object may be free and deliberate.

Therefore if the will be offered an object which is good universally and from every point of view, the will tends to it of necessity, if it wills anything at all; since it cannot will the opposite. If, on the other hand, the will is offered an object that is not good from every point of view, it will not tend to it of necessity. And since the lack of any good whatever is a non-good, consequently, that good alone which is perfect and lacking in nothing is such a good that the will cannot not-will it; and this is happiness. But any other particular goods, in so far as they are lacking in some good can be regarded as non-goods; and, from this point of view, they can be set aside or approved by the will, which can tend to one and the same thing from various points of view.\textsuperscript{12}

Thus, the will seeks and moves toward universal good by reason of its very nature. For will to seek universal good is not

\textsuperscript{12}The \textit{Summa Theologica}, I, \textit{lxxx}, a. 2, c.
to act deliberately or specifically, but it is rather to act in a way which is essential to its very existence. In the presence of universal good, there is no alternative for will; it is impelled towards it by an intrinsic necessity. However, even in regard to beatitude we must be careful to make distinctions concerning the operations of will. Necessity pertains not to the exercise of the act, but only to the determination of the act. It is impossible to will the opposite of beatitude. But the exercise of will, under special conditions, is free in regard to any object; for man is able to will not to think even of beatitude. In respect to objects, then, the will is always free; for no matter what the object may be it is always within man's power not to think of it. 13

As for particular goods, will may or may not tend toward them. Man is master of his acts in the presence of particular goods, since he is not impelled towards them naturally, either in the determination or exercise of his will. Only that which

---

13 Ibid., I-II, x, a. 2, c.; also, "Cum autem voluntas dicatur libera inquantum necessitatatem non habet; libertas voluntatis in tribus considerabitur . . . Sed quantum ad primum horum inest libertas voluntati in quolibet statu naturae respectu cujuslibet objecti." Ordinis Praedicatorum Opera Omnia, Tom. IX, Quaestiones Disputatae De Veritate, XXII, a.6. Parmae: Typis Petri Fiaccadori, 1859.
is necessarily concerned with man's happiness commands his will. However, because of the deficiencies of the human intellect, the Absolute Good is apprehended in this life only in an imperfect manner. At other times particular goods are so presented by the intellect that they appear as a universal good.

The absolute norm of 'the good', however, can be approached as interpreted by reason in various ways, prudently, or imprudently, in accordance with the more or less changeable and fallible human judgment, and the formation of the judgment itself is man's responsibility, depending, as it were, on his more or less adequate realization of the nature of 'the good' and 'the end' and on his more or less developed intellectual faculty of comparative evaluation. Thus, reason may 'substitute' pseudo values for the real Absolute, and it may present to the will these surrogates as acceptable and desirable goods.

---

14 "Bonum autem perfectum, quod est Deus, necessarium quidem connexionem habet cum beatitudine hominis, quia sine eo non potest homo esse beatus; verumtamen necessitas hujus connexionis non manifeste apparet homini in hac vita, quia Deum per essentiam non videt; et ideo etiam voluntas hominis in hac vita non ex necessitate Deo adhaeret; sed voluntas eorum qui Deum per essentiam videntes, manifeste cognoscunt ipsum esse essentiam bonitatis et beatitudinem hominis, non potest Deo non inhaerere, sicut nec voluntas nostra potest nunc beatitudinem non velle." Ibid., Tom. VIII, Quaestiones Disputatae De Malo, III, a.3.

In order that any object move the will, it is necessary that it first be apprehended by the intellect, for the will itself is a blind faculty. Because of man's imperfect intellectual nature, an object may be erroneously represented to the will. For man's intellect does not always perceive at once the good or evil in all their possible relationships. "Now it is the result of the imperfection of man's intellectual nature that his intellect does not immediately possess all things capable of being understood, but only a few things, from which he is moved in a measure to grasp other things." For this reason man often errs in choosing means which are not directed toward his ultimate goal; or, on the other hand, the will may actually avoid the greater good in its preference for the lesser good, because of the same circumstances. The intellect may even represent good where none actually exists, or may so present the lesser good as to make it apparently the greater good. In the same manner, evil is often made to be an apparent good. Thus the will, in this life, may not adhere to objects which have a necessary connection with our ultimate end.

But there are some things which have a necessary connection with happiness, namely, those by means

16 The Summa Theologica, I, lx, a. 2, c.
of which man adheres to God, in Whom alone true happiness consists. Nevertheless, until through the certitude produced by seeing God the necessity of such a connection be shown, the will does not adhere to God of necessity, nor to those things which are of God.17

It is clear, then, that will tends necessarily only to what is presented as absolute good. The will desires, of necessity, happiness; and whatever else it desires, it does so freely. Now only God, the Absolute Good, is without imperfection, and therefore the only thing the will cannot not-will. Any other good, no matter how desirable it may actually be in itself, contains imperfection which is a non-good, and therefore not necessarily desirable by man's will.

And since the lack of any good whatever is a non-good, consequently, that good alone which is perfect and lacking in nothing is such a good that the will cannot not-will it; and this is happiness. But any other particular goods, in so far as they are lacking in some good, can be regarded as non-goods; and, from this point of view, they can be set aside or approved by the will, which can tend to one and the same thing from various points of view.18

17Ibid., I, lxxxii, a. 2, c.
18Ibid., I-II, x, a. 2, c.
Man is not free to choose his ultimate goal, for he was created for happiness and is necessarily destined by nature for this end. But the means by which beatitude is finally attained is left to the free choice of man. If perfect happiness is not reached on the day of reckoning, failure to reach the goal is inevitably the result of contrary means, freely chosen. "We are masters of our own actions by reason of our being able to choose this or that. But choice regards, not the end, but the means to the end, as the Philosopher says. Consequently, the desire of the ultimate end is not among those actions of which we are masters." 19

Rational appetitive acts may also be distinguished either as elicited acts of the will or as commanded acts of will. This division clarifies the explanations for acts performed contrary to will, i.e. acts performed through coercion. Elicited acts of will are internal volitions, and proceed from within the appetitive faculty itself. Such acts are independent of any force external to will, and may be performed regardless of contrary extrinsic manifestations. Commanded acts of the will are those acts which are executed by the will

19 Ibid., I, lxxxii, a. l, ad. 3um.
itself or some other power. Thus, the will might command an action of the body which remains unperformed because of an external obstacle. In such a case, will itself is not internally impeded, and remains unchanged; only the attempt to manifest itself externally in a particular way is thwarted. In endeavoring to shift an ambiguous figure, the subject may fail to acquire the desired rate of oscillation, not because will is lacking, but because obstacles are present. On the other hand, a man may be forced to give up his personal possessions to a robber, not because he wills it, but because physical violence forces him to do so. "As regards the commanded acts of the will, then, the will can suffer violence, in so far as violence can prevent the exterior members from executing the will's command. But as to the will's own proper act, violence cannot be done to the will." 20

The clarification between an immediate act of will and a voluntary action is also necessary before complete understanding of will psychology can be attained. An act of will proceeds directly from the rational faculty itself, while the voluntary action results, in turn, from an act of will. A voluntary action proceeds from the will, indirectly, in so far

20 Ibid., I-II, vi, a. 4, c.
as other means are necessary for its performance. For the execution of an act of will, rational appetite, preceded by intellectual apprehension alone suffices; for a voluntary action, there may be any number of other faculties or powers, either of mind or body, needed for the fulfillment of the will-act. Time may elapse between the act of will and the voluntary action commanded. "The act of the will is twofold: one is its immediate act, as it were, elicited by it, namely, to will; the other is an act of the will commanded by it, and put into execution by means of some other power: e.g., to walk and to speak, which are commanded by the will to be executed by means of the power of locomotion." Many of the reaction-time experiments have centered around this precise difference, and have sought to investigate the time element between decision and actual performance.

We must take care, in these explanations of will activities, not to imply any disunity either of the volitional faculty itself or of the human person. Whatever action is volitional in character, proceeds from and is a manifestation of the rational appetite. Likewise, it is the whole man who wills and the whole man who performs voluntary actions. Though

21 Ibid., I-II, vi, a.4, c.
at one time will dominates the pattern of human activity and at another time does not, there are no actions which can be attributed solely to one part of man. Distinct powers do not operate in complete independence of each other in man, for the one is influenced by the very existence of the other. All powers and actions in man manifest various aspects of the same hylomorphic unity. Man is essentially a unified whole; and consequently any one of his actions whatsoever proceeds from a unified self. Man wills and man performs voluntary actions. In the first case, will alone dominates the picture; in the second, will together with the powers needed for the requested operation dominates the pattern of activity. Whatever the action, it is the same unified self, the same personality who is agent.

Scholastic philosophy has always emphasized the significant distinction between human acts (actus humani) and acts of man (actus hominis), because of the moral implications involved.

An inadvertent act (often termed an act of man) is an act which, though performed by a human being, does not depend on his free will. Man has, or exercises, no dominion over such actions. For example, man has no control of the beating of the heart or of talking in his sleep. He does not exercise dominion over thoughts indulged
in during a moment of distraction; nor over actions performed in walking, eating, etc., without reflection...

A human act is an act that is deliberately performed by one possessed of the use of reason.

Deliberately performed means that it is freely and knowingly placed. It is deliberately elicited by the will. Man has dominion over such actions as thinking with deliberation; eating, drinking, etc., deliberately.\textsuperscript{22}

Acts of man, though indeliberate, are volitional in the sense that man's nature is rational and free. In human acts the will exercises its freedom. The phrase, \textit{actus hominis}, refers to the impulsive and indeliberate or even unconscious acts of man. They are voluntary only in a wider sense, in so far as they are preceded by an apprehension of an end, but are the outcome of an internal principle, i.e., they are indeliberate. "Just as natural tendency springs from nature and is in accord with it, so does the tendency which corresponds to sensitive and intellectual nature follow from knowledge."\textsuperscript{23} At times, acts of man are simply spontaneous ones without any previous choosing or rejecting. Again, they may not be wholly instinctive, but because the higher faculties of the soul play a


\textsuperscript{23} Pierre Rousselot. \textit{opus cit.}, p.
minor part, they cannot be considered as truly human acts. The term, *actus humani*, refers to actions in which there is both apprehension of the end sought and knowledge and consent to the desire or acquisition of the apprehended goal. Human acts are both free and deliberate. Hence, the will exercises its prerogative only when requisite conditions are fulfilled. First of all, will is free when it is at liberty to choose or not to choose; to act or not to act; furthermore, the will is free when it is capable of selecting one or the other means of obtaining its goal.

This point again brings us to the explanation of universal good as compared with a particular good. The source of freedom lies in the nature of intellect. Because of natural imperfections, the intellect in our present life is unable

---

24 "Cum autem voluntas dicatur libera inquantum necessitatem non habet; libertas voluntatis in tribus considerabitur; scilicet quantum ad actum, inquantum potest velle vel non velle; et quantum ad objectum, inquantum potest velle hoc vel illud, et ejus oppositum; et quantum ad ordinem finis, in quantum potest velle bonum vel malum. Sed quantum ad primum horum inest libertas voluntati in quolibet statu naturae respectu cujuslibet objecti. Secundum vero horum est respectu quorundam objectorum; scilicet respectu eorum quae sunt ad finem, et non ipsius finis, et etiam secundum quemlibet statum naturae. Tertium vero non est respectu omnium objectorum, sed quorundam eorum, scilicet quae sunt ad finem; nec respectu cujuslibet status naturae, sed illius tantum in quo natura deficere potest. Nam ubi non est defectus in apprehendendo et conferendo, non potest esse voluntas mali in his quae sunt ad finem, sicut patet in beatis. Et pro tanto dicitur, quod velle malum nec est libertas nec pars libertatis, quamvis sit quoddam libertatis signum." *Quaestiones Disputatae de Veritate*, XXII, a. 6.
to apprehend Absolute Good, towards which will would be impelled. Intellect apprehends only limited good, or Absolute Good in a limited manner. For this reason, will may accept or reject an object, under proper conditions.

Some scholastics have made further differentiations of voluntary actions. These distinctions are helpful especially when considering lower levels of responses. The latter are often confused with one or the other kinds of voluntary action. For example, habits are interpreted by some psychologists merely as types of conditioned reflexes.

Father Gruender tells us that an action may be actually voluntary when its performance is willed directly; or it may be virtually voluntary when the action results from a volition made at some previous time; or it may be habitually voluntary, i.e., an action initiated by the will, but through repetition is now performed mechanically.

A movement is actually voluntary when the internal act of the will guiding it is here and now present. A movement is virtually voluntary when it is a component part of a series of movements and the internal act to perform this particular movement is implied in the intention to perform the whole

25 See above pp. 24 ff.
series of movements. A movement is **habitually voluntary** when it is so entirely given over to the neuromuscular system that it is performed without any attention of any kind and can be called voluntary only, because sometime in the past I have voluntarily created this physiological habit.26

So far we have confined our discussion to a description of voluntary actions. The bulk of psychological experiments already performed have been confined to reactions on other levels of response. In many cases, experimenters have interpreted their results in such a way as to indicate their belief that mechanical or instinctive responses constitute the highest level of both human and animal activity. The Behaviorists have vigorously contended that their experimental results prove the all importance of conditioned reflexes in human as well as in animal behavior. All the complexities of the human or animal organism are explained in terms of reflexes. Followers of the Freudian and Hornic Schools have refuted the conditioned reflex theories, and claim that instincts are the driving forces of all life. As a contrast to the subsequent investigation of will experiments and to the previous discussion of volition, it will be beneficial to review briefly some

---

of the outstanding experiments on reflex and instinctive behavior, and also to study the nature of these non-volitional responses.

Non-Volitional Responses

The experiments of Pavlov, Bechterev, Thorndike, and Watson, gave much impetus to the study of reflexes. Through the influence of Watson and Thorndike in America, the stimulus-response bond was upheld by many as the inevitable answer to the intricacies of human behavior. Man was, accordingly, reduced to a mass of physical connections, and the human personality, to the sum total of biological genes. Volition, as well as thought, sensation, and all mental processes, was explained in terms of reflexes. Will, as an immaterial faculty, was discarded as an imaginary power, a remnant of medieval metaphysics. Terms referring specifically to any of the rational processes were rated as unnecessary appendages in scientific studies. The extremists even considered instincts but another name for a series of conditioned reflexes. Determinism was riding on the crest of the wave. The mechanists claimed that all the complexities of human behavior were ultimately reducible to reflexes.
The animal experiments of Pavlov constituted one of the first great studies of the conditioned reflex. The universal popularity of these experiments, along with those of Watson, gave birth to modern behaviorism, and the conditioned reflex formed the very core of behavioristic mechanism. By means of the conditioned reflex technique, attempts were made to investigate the whole of human behavior, and also to determine its very nature and character.

The much quoted experiment, and the standard example given by behaviorists, is that of Pavlov's conditioning of dogs. A conditioned reflex refers to a response aroused by a stimulus other than the original one. Thus the original stimulus for a salivary response in dogs is the presence of food on the tongue. Pavlov rang a bell every time food was presented to the dogs, and this procedure was continued for a number of times. Afterwards, the bell alone, without the presence of the food, was found to cause the flow of saliva in the dogs.27

The materialists were quick to generalize on such a principle, and applied their generalizations to human as well as animal behavior. The behaviorists soon established the stimulus-response bond as the unit of activity; complex activ-

ities were but combinations and integrations of S-R units. By means of conditioning, it was now thought that the whole process of behavior could be studied. One could build up or tear down any phase of human activity. Conditioning provided a method that was completely objective. As Watson states, the aim of all psychology is to predict and control behavior, and by studying the responses occasioned by stimuli it is possible to achieve this goal with great accuracy. The inefficiency of introspection, the accepted method of the Structuralists, could at last be eliminated and replaced by a thoroughly scientific and objective technique.

John Watson, after the example of Pavlov, attempted to discover further facts about conditioned reflexes. He did not restrict his experiments to animals, but endeavored to substantiate the application of the reflex theory to human behavior by performing experiments on children. He began this study on the premise that there was nothing of a subjective nature in the child itself which contributed to its own development. The outcome of the individual, his position in life, his personality, his character—all were the result of conditioning and environment. Watson's most famous experiments were

---

those which dealt with the emotions of children. Through a series of tests, Watson presented a rabbit to the young child under prescribed conditions. On his first experience with the furry animal the infant showed no fear whatsoever, but when the animal was repeatedly presented at the same time a loud noise was sounded, the child was soon "conditioned" to fear the rabbit. Like experiments were performed to test the child's responses to fire, large dogs, snakes, white rats, etc. From the results obtained, Watson concluded that all types of learning and all behavior patterns proceed in the same way by means of conditioning.29 His famous proclamation sums up the extreme view of behaviorism.

Give me a dozen healthy infants, well formed, and my own specified world to bring them up in and I'll guarantee to take any one at random and train him to become any type of specialist I might select--a doctor, lawyer, artist, merchant-chief and yes, even into beggar-man and thief, regardless of his talents, penchant, tendencies, abilities, vocations, and race of ancestors.30

Conditioning, reconditioning, unconditioning—all are methods dependent upon environment. In his many experiments on new born infants, Watson found few unlearned responses. Consequently, he concluded that all patterned responses develop after birth through the influence of environment only. Pre-natal environment as well was thought to be an important factor in later development of responses. Besides these conditions there was little else, if anything, to account for man's behavior.

Such extreme mechanism reduces man to a state of "protoplasmic plasticity". What is really an integral part of the individual himself is interpreted as some phase of environment. The individuality of the human person, the contributions of self, the influence of innate tendencies, and above all, man's prerogative to exercise free will, are all entirely disregarded in the behavioristic explanations of human activities. Explanations of human actions in terms of reflexes reduce these actions to an unconscious level.

Reflexes are localized bodily reactions; and thus are not even reactions of the organism as a whole. A reflex stimulus need not be a conscious one, though it may be. Reflexes are specifically confined to the biological level and can, therefore, be stimulated independently of will. In
reducing human behavior to this level of response, materialism reached its nadir. Man was deprived not only of free will but also of consciousness. "The conditioned reflex instead of banishing introspection and explaining consciousness in voluntary action, itself demands an explanation." The attempt to explain all human behavior, even the higher processes of thought and volition, in terms of reflex responses only increased the confusion existing in psychological circles.

Repercussions to the reflex theory occurred in the subsequent over-emphasis on sensory dynamics. Mechanism had deviated too far from a common sense psychology of behavior. Rejection of consciousness and the failure to account for dynamic tendencies in both human and animal life were the two most obnoxious features of behaviorism. Reactionary theories, accordingly, sought to emphasize the importance of instincts, impulses, drives, and urges. Consciousness was restored, but not to its rightful place. Freudsians designated the unconscious level as the harbor of all man's urges and drives, and as the source of all human dynamism. Other theories concentrated on instincts striving toward purposive goals.

Instinctive responses are common both to man and to animal; these tendencies are unlearned dispositions which activate the organism to respond in a particular way in a given situation. In contrast to the reflex, an instinctive response is not a localized one, but rather an activity in which the organism as an individual whole is involved. The modern concept of instincts includes three aspects: cognitive, appetitive, and motor. Thus, sensory perception of an object or activity, as desirable or undesirable, precedes the impulse towards or away from it, and is subsequently followed by a corresponding motor activity. St. Thomas speaks only of the vis aestimativa which corresponds to the cognitive element in the modern notion of instinct, though he refers to natural inclinations common to both man and animal. "... there is in man an inclination to things that pertain to him more specially, according to that nature which he has in common with other animals; and in virtue of this inclination, those things are said to belong to the natural law which nature has taught to all animals, such as sexual intercourse, the education of offspring and so forth."32 St. Thomas, however, distinguishes between the estimative power in man and that of animal prudence.

---

32 The Summa Theologica. I-II, lxciv, a. 3, c.
For the apprehension of intentions which are not received through the senses, the estimative power is appointed...

Now, we must observe that as to sensible forms there is no difference between man and animals; for they are similarly immuted by external sensibles. But there is a difference as to the above intentions: for other animals perceive these intentions only by some sort of natural instinct, while man perceives them also by means of a certain comparison. Therefore the power which in other animals is called the natural estimative in man is called the cogitative, which by some sort of comparison discovers these intentions.33

The response level of instinct lies midway between reflex and rational appetition. Impulsive reactions are higher than reflex activities since they require consciousness and sensory perception of a goal, but lower than volitional activities since they are primarily of a material and sensory nature. Instinct in man is essentially the same in itself as instinct in animals, but human instinctive activities differ from those of the animal because of the ever-present influence of man's rational powers. The animal lives and moves solely by instinct, while in man instincts and impulses are always capable of being made subservient to volition.

33 Ibid., I, lxxviii, a. 4, c.
Modern theories have sometimes over-emphasized the role of instincts in psychological phenomena. While instincts became all important in comparative psychology, they constitute only a part of man's sensory nature. What is true for the animal in regard to instincts is not equally applicable to man. The animal is a creature of instincts; man is endowed with an intellect and will which redirect and modify these impulsive tendencies.

Prominent among psychological theories which uphold instincts as the source of human dynamics is the Hormic theory. William McDougall studied the habitat and development of the solitary wasps and also of various types of birds. He carefully observed their periods of maturation and the instinctive tendencies manifested in all phases of their life-cycle. From his experiments on insects and animals, McDougall formulated a theory of instincts which he applied equally to man. Greater variabilities in behavior patterns of the latter were said to be due to the more complicated organism of human beings. The influence of McDougall's Hormic theory is still prevalent in modern psychology, and appears in various

34 Outline of Psychology. New York and Chicago: Charles Scribner's Sons, 1923, Chapters II-VII.
modified forms. Instinct adequately explains, for the materialist, the problems of human dynamics. Volition is defined as a higher type of instinct, or as a distinct power which is subservient to instincts and drives. As McDougall says,

The instinctive impulses determine the ends of all activities and supply the driving power by which all mental activities are sustained; and all the complex intellectual apparatus of the most highly developed mind is but a means towards these ends, is but the instrument by which these impulses seek their satisfactions. 35

In theories of will and in experiments on volitional processes, the erroneous concept of instinct or of other lower types of response have vitiated otherwise valuable results. For the most part reflex activities are no longer considered the predominant factor in human behavior, and because of their mechanical nature, psychologists usually refer to them as physiological responses only. But modern dynamism is almost entirely centered upon the sensory level of appetition. Will in its capacity of a rational dominating faculty is disregarded. Or if will is referred to as a rational power, rational is understood in the sense of requiring greater

complexity of response. No essential distinction between sensory and rational appetition is made by the modern non-scholastic psychologist, and instinct and volition are differentiated only on the basis of greater or less variability in response patterns.
CHAPTER III
THEORIES OF WILL

The preceding chapter on the nature of volition has presented the theory of will generally upheld by the Scholastics. Differentiations of opinion concerning secondary points have resulted in interpretations other than that of St. Thomas. However, whatever the variations may be, all Scholastics maintain the same fundamental principles concerning will, i.e., that will is the rational, appetitive faculty in man and is rooted in the very essence of his being.

The voluntarism of Duns Scotus is strongly opposed to the intellectualism of St. Thomas, but the opposition seems to result from emphasis on one or other faculty and the kind of distinction that is to be found between them. For St. Thomas the volitional process includes both reason and appetite, while in Duns Scotus' doctrine we find a definite line of demarcation drawn between will as nature and will as the source of free or
 elective acts.¹ Reason is never the total cause of a free act, for liber arbitrium is not predetermined by the judgments of reason in any way. Whatever criticisms are presented by reason previous to the fiat, will itself remains entirely free to do this or that. Thus for Scotus, opposition existed between will as a natural tendency and the elicited act of will. St. Thomas, as we have already seen, maintains that reason and knowledge form an intimate part of the volitional process, and that will is ultimately derived from intellect. However, both Duns Scotus and St. Thomas were careful to preserve at all times the immaterial and rational nature of will.

The early Greeks, long before the medieval philosophers, oftentimes had been vigorously engaged in polemical discussions on problems of the will. Controversies arose among them in their attempt to study and develop a system of ethics. The ancient philosophers, as well as the early Christian Fathers,

¹"Loquendi de appetitu naturali, voluntas quidquid appetit, app- petit propter beatitudinem; quia secundum appetitum naturalem appetit secundum quod est perfectio ejus: sed quaecumque per- fectio appetitus naturalis est ejus perfectio in ordine ad ul- timum ejus perfectionem... Si quaestio autem quaserat de appetitu voluntatis, prout est actus elicitus, sic dico quod non oportet quod voluntas appetat quicquid appetit propter finem ultimum." Quaestiones Quatuor Voluminum Scripti Oxoniensis Super Senten- tias, & Quodlibeta. Tom. IV Dist. 49, Q. IX, no. 18.
and the medievalists who followed them, emphasized the intellectual nature of will. The lower passions and faculties were described as subservient powers. The ancient philosophers were chiefly concerned with the will as the inseparable associate of morality. Among the medievalists, problems of will centered around the aspect of freedom as opposed to a deterministic theory of will. In modern times great impetus has been given to the study of will from a psychological standpoint as well as from the philosophical aspect.

Each theory of will is characteristic of some one system of philosophy. In other words, a theory of will is an essential constituent of any philosophy of man. The nature of man, his course of action, his purpose of existence, the means by which he attains his ultimate goal—all are problems intimately related to will. The various modern schools of thought have been formed upon some basic explanation of man, and in each of these schools is found a corresponding interpretation or theory of will.

Modern schools of psychology have been greatly influenced by the philosophy of Locke and Hume. The empirical and inductive methods used by these philosophers gave rise to the present day "psychology of behavior" and a new concept of will.
According to Locke, "disquietude" or "uneasiness" constitutes the primary feature of will. Will and freedom, though not identical, co-exist in parallel fashion, and both refer to "a power to begin or forbear action, continue or end several actions of our minds, and motions of our bodies barely by a thought or preference of the mind." Will is distinguished from freedom in so far as it is a power of preference, while freedom is the power of acting once the preference has been made. Thus, there can be will without freedom, but no freedom without will. While man is free to act he is not free to will. It is this "uneasiness" which determines man's will or preference. "The motive for continuing in the same state or action is only the present satisfaction in it; the motive to change is always some uneasiness; nothing setting us upon the change of state, or upon any new action, but some uneasiness." And again Locke says, that the most urgent uneasiness we at any time feel is "that which ordinarily determines the will successively, in

3 Ibid., section 29.
that train of voluntary actions which make up our lives...but that which immediately determines the will, from time to time, to every voluntary action, is the uneasiness of desire, fixed on some absent good: either negative, as indolence to one in pain; or positive, as enjoyment of pleasure. Will runs counter to desire only when that desire is weaker than some other. Action thus is always determined by the strongest desire or motive. Locke describes the strongest motive as the most urgent uneasiness. His idealistic system of philosophy forbade him to admit that an object could be the source of a thought. For Locke, mind has no other object except its own ideas; and ideas, he claims, originate only from sensations and reflection. Therefore, neither can motives of will proceed from reason. Such would be the only consistent corollary to his fundamental idealism. The only possible object of reason is the simple idea which proceeds from sensation and is inevitably accompanied by the feeling states. "Delight or uneasiness, one or other of them, join themselves to almost all our ideas both of sensation and reflection; and there is scarce any affection of our senses from without, any retired thought of our mind within, which is

4 Ibid., section 40, 33.
not able to produce in us pleasure or pain."\(^5\) In the strict sense of Locke's doctrine, the only proper motives of action or will are appetite and desire, as produced by the imagination.

Only happiness is capable of moving desire, and happiness consists in the acquisition of pleasure and avoidance of pain. Good and evil are nothing but pleasure and pain, and happiness in its full extent is the utmost pleasure we are capable of.\(^6\) Thus man does not err in his pursuit of happiness, for he never fails to realize that which is pleasurable. Every one "knows what best pleases him, and that he actually prefers."\(^7\) Locke, however, avoids pure Hedonism by resorting to the future good as a motive of will. Though will without exception is determined by the strongest desire, and the strongest desire is none other than the strife for the greatest pleasure, man has the power to suspend his desires and stop them from determining his will to any action until, "he has examined whether it be really of a nature in itself and consequences to make him happy or no."\(^8\) In other words, man can suspend actions in preference for a future pleasure which he deems greater than the present.

---

\(^5\) Ibid., Chapter vii, section 2.
\(^6\) Ibid., Chapter XXI, section 42, Chapter xxviii, section 5.
\(^7\) Ibid., Chapter xxv, section 58.
\(^8\) Ibid., section 56.
one. In these comparisons, judgment may err and in doing so man becomes responsible for his own actions and preferences.

Even in his admission of a possible greater pleasure obtainable in the future, as compared to a present pleasurable good, Locke's doctrine reveals an inherent weakness. Since all action is determined by impulse to remove the "uneasiness" created by the desire for the greatest pleasure, which is in turn derived from the senses, how may we account for the actual desires and objects of will which in reality cannot be found in the sensible world? Above all, Locke's doctrine of will, though it proposes to offer a basis for morality, is inconsistent with true morality when it attempts to explain good and evil in terms of pleasure and pain.

David Hume

Hume follows closely the theory held by Locke, and defines will as "the internal impression we feel and are conscious of when we knowingly give rise to any new motion of our body, or new perception of our mind." Volition is enumerated in the

---

category of passions along with desire and aversion, grief and joy, hope and fear. The passions arise from good and evil; and the internal impression we feel when we consciously give rise to motion is will. Feeling, therefore, becomes an integral part of every volition. In Hume's philosophy, will is reduced to the sensory level and is deprived of its dignity as a rational power. Along with the "other passions" it is founded upon pleasure and pain, and may even arise from impulse or instinct. There is no question of will as an intellectual faculty to which passions and impulses must be subservient. Hume's notion of will is based on his particular concept of intellect and reason. "Reason is, and ought only to be the slave of the passions and can never pretend to any other office than to serve and obey them."10 Following the tenets of idealism, Hume spoke of ideas in terms of unrealities, and reason, merely as a concept of mind. In Hume's theory, reason could neither constitute objects nor provide motives because he maintains that all motives arise from the desire for pleasure. According to Hume, the only check to any passion is a motive of greater pleasure or a countermotive; therefore there is no

10 Ibid., p. 195.
such thing as conflict between reason and passion. For, "A passion must be accompanied with some false judgment, in order to its being unreasonable; and even then is not the passion, properly speaking, which is unreasonable, but the judgment."

In Hume's doctrine, the good as proper object of will refers only to pleasure; thus the influencing motives of will are always contained in some form of pleasure. Even as regards moral good, pleasure remains the dominating factor; for the moral good itself is considered a mode of pleasure, and only as such does it ever become a motive to the will.

The sensism and hedonism of Locke and Hume are among the principle sources of modern materialistic psychology. Associationism in the realm of ideas and an emotional or sensory concept of will formed the chief tenets of many schools of thought which succeeded these philosophers. Locke's empiricism with its denial of the immaterial and spiritual has been the primary source of modern scientism.

Johann Friedrich Herbart

On the continent Herbart may well be considered an outstanding forerunner of modern psychologism. The mind in

11 Ibid., p. 196.
Herbartian philosophy constitutes an aggregate of faculties; more definitively, mind is the sum of sense-perceptions, and among these is will. Mind is not a unit but an aggregation of many units. The concept of mind is derived from the fundamental tenet that all knowledge is based on experience guided by metaphysical and mathematical principles. Thus psychology is derived from a threefold source; metaphysics, mathematics, and experience.

Ideas themselves are dynamic entities and struggle with one another for self-preservation, i.e., for existence in consciousness. Ideas, considered per se, are merely passive states of mind, but in their relations with one another and in their consequent attempts to reach consciousness they become dynamic forces. Oftentimes two ideas fuse and form a continuity of thought, while at other times they remain antagonistic and repel one another.

The distinction between ideas and will, or between cognition and appetition is not well-defined.... "all concepts without exception may be expressed as desires and feelings."12 Herbart's concept of will is merely the struggle of ideas to

attain consciousness or to strive for self-preservation. The interaction, fusion, and reproduction which constantly take place in the world of ideas form the basis of will activity. The response of the mind to outward physical stimuli is primarily a volitional process. The idea which is of greatest worth becomes the motive value of will, since it is this idea which reaches consciousness by means of its overpowering dynamic strength. In brief, the first activity of mind in its response to external sense stimuli is a will activity, and the worth of each idea determined by its predominance over others in consciousness is said to be the motive value.

Will is desire accompanied with the presupposition of the attainment of that which is desired.\(^\text{13}\) Actual self-control and the possibility that a man may carry out that which he demands and should demand of himself depends upon the cooperation of several concept-masses. In this, that general will is manifested, if such has already been formed, and in that case it is always located in some kind of concept-mass, a great power which may be recognized in every activity that has a purpose.\(^\text{14}\) The more complicated such an activity is, the

\(^{13}\text{Ibid.}, \ p. \ 175.\)
\(^{14}\text{Ibid.}, \ p. \ 181.\)
more manifest is the power of that dominating concept-mass in which the will of the chief design has its seat over all the others which are subordinated to it in different degrees.15

Thus the will, whether it be considered "will in general," or "voluntary acts which deal with details," has its origin in these "concept-masses." The latter are the ideas which have succeeded in their attempts at self preservation and have attained existence in consciousness. These concepts, assembled together, constitute the sum-total of consciousness.

Herbart's associationism greatly emphasized the unconscious also. For the most important dynamic activities were those in which ideas struggled with one another for dominance, and this process of fusing, blending, repelling, reproducing takes place in the realm of the unconscious.

Franz Brentano

Between the idealism of Locke and Hume and the objective experimentalism of the Leipzig school lies the significant and influential group of "act psychologists" under the leadership of Franz Brentano. The important aspect in regard to the

15 Ibid., p. 182.
development of Brentano's theory was its extreme contrast to
the prevailing theory of the day. Brentano was of Wundt's
generation. The traditional theory, the psychology with which
other views and systems were compared and contrasted, was the
content psychology of the Leipzig School. Act psychology dared
to introduce and to emphasize the place of dynamic concepts, a
measure contrary to all the precepts of the established
Wundtian orthodoxy.

Brentano's empiricism afforded a unique interpretation of
appetition in general. Within the threefold classification of
mental acts (ideating, judging, feeling) feelings were thought
to be analogous to judgments and in this way: in judgment
there is either the decision that a thing is true or that it is
false; likewise, feeling is either pleasant or unpleasant. In
the division of the mental processes called feelings, functioned
the phenomena of love and hate. Will itself is nothing more
than the complete functioning of the love-hate activity. The
third class of mental phenomena contains all the various forms
of appetition that are listed ordinarily under the names of
feelings, emotions, instinct, desires, and will. Within this
third category, all of these appetitive activities form more or
less of a concatenation according to the degrees of noticeable
differentiation; so that one may pass from one member of the
series to the next quite easily and perhaps almost imperceptibly.
Herein lies the difference between feeling and will. At one end of the series stands feeling and at the other end, will.\(^\text{16}\)

Brentano, like many of the evolutionists and other materialists, considers the higher faculties of man, such as willing and understanding, different from sensory knowledge and appetite only in degree. No matter how pronounced the differentiation may be between a feeling of sadness and an act of will, the two functions are separable only in degree of intensity and not by any intrinsic distinction of kind.

In Brentano's system of values, the phenomenological concept of will is developed more fully. Values in act psychology are not external entities existing in the objective world, but are derived from the mental activities of the third class of psychic phenomena, namely, feelings. An analogous relationship exists between judgment and the love-hate process. Ideating consists only in the presentation of objects or contents; but in judging and feeling, a movement takes place under the form

\^\text{16} Betrachten wir als Beispiel die folgende Reihe: Traurigkeit--Sehnsucht nach dem vermissten Gute--Hoffnung, dass es uns zuteil werde--Verlangen, es uns zu verschaffen--Mut, den Versuch zu unternehmen--Willeseinschluss zur Tat. Das eine Extrem ist ein Gefühl, das andere ein Willen; und sie scheinen weit voneinander abzustehen; Wenn man aber auf die Zwischenglieder achtet und immer nur die nächststehenden miteinander vergleicht, zeigt sich da nicht überall der innigste Anschluss und ein fast unmerklicher Übergang?* Psychologie Vom Empirischen Standpunkt, Zweiter Band, Leipzig: Verlag Von Felix Meiner, 1925, p. 84-85.
of selection. It is the third class of love-hate which produces values; the second class, judgment, produces only intended truth or falsehood. The fundamental norms of value, namely, the true, the good, and the beautiful, instead of becoming basic themselves, are rather superimposed upon the already established categories of ideas, judgments, and feelings. Thus, the beautiful is the norm of the subject-object relationship which exists in the realm of ideas; it is the result of the highest functioning of the ideating process. The true results from the highest functioning of judgment, while the good results from that of feelings or the love-hate faculty.

Will and sense appetites are grouped together as forms of judgment. Neither is judgment restricted to a rational process, nor are instinctive impulses confined to the sensory realm. Both are but members of a mental series in which the various forms progress from the lower to the higher degrees of intensity in an unnoticeable transition.

Brentano reveals his hedonistic tendencies especially in his theory of values and in his explanation of the good. One
of the essentials of good is its pleasing nature or quality; if there is no pleasing quality, there is no good. 17

Brentano's notion of good is clearly steeped in hedonism and is ultimately based upon the pleasure principle. Because he makes no essential distinction between rational and sensory appetite, it logically follows that, for him, a good, in order to be so, would conform to both forms of processes. Since there is no subjection of one to the other, both would be capable of determining good. When an essential difference is recognized between the will and sense appetite, a good in order to be a true good must be conformable to man's rational nature. An apparent good, such as bodily pleasure, may be an evil because of its effect on man's rational nature; and a sensory displeasure may be a true good because it is advantageous for man's rational nature.

In the explanations of the good and of values, Brentano is not entirely consistent. Pleasure is not considered as the only actual good. However, he maintains, at the same time, that feeling is the criterion for degrees of goodness. Here again the essential distinction is missing. Intellect and sense do not apprehend good in the same manner, and therefore feeling cannot be the criterion for a universal notion of good. To establish the criterion for good in man's sensitive nature would be to subject the higher power to the lower. "Now the sensitive appetite is not related to the common notion of good, because neither do the senses apprehend the universal—But the will is related to the good according to the common notion of good..." But if feeling increases or decreases the goodness of a thing in itself, as Brentano says, feeling would be the criterion of goodness and thus surpass the higher powers which would then be dependent upon the lower. Brentano does not actually distinguish between real and apparent good; a thing is good only if it contains his requisites for good. Actually,

18 "Demselben Princip entsprechend wächst in dem Falle, wo die Gemütstätigkeit gut ist, die Güte des Aktes mit seiner Steigerung, während in analoger Weise in den Fällen, in welchen der Akt rein schlecht ist oder wenigstens in irgendwelcher Beziehung an dem Schlechten teil hat, die Schlechtigkeit des Aktes mit seiner Intensität zunimmt." Ibid., p. 60.

the goodness of a thing is independent of feeling because the goodness of a thing per se can be ascertained only by the intellect. Feelings are oftentimes moved toward an object which the intellect knows to be bad; on the other hand, they often repel objects which the intellect knows are good. It is precisely this antagonism between the will and lower powers which constitutes man's perpetual strife with himself. Certainly, his feelings alone are no criterion for the goodness or badness of a thing.

Brentano's influence in the field of dynamics was far reaching as well as immediate. In the interpretation of will and the appetitive processes in general, the effects of act psychology appeared in the theories of Ward, Stout, the Würzburg School, the Gestaltists, Spearman, and others, as well as in the Austrian School which adopted act psychology almost in its entirety.

Wilhelm Wundt

Though a close adherent to Herbartian associationism in many respects, Wundt did not adopt Herbart's concept of will without modification. He rejected the notion that will is merely a simple unconscious quality, a definition upheld by some of his predecessors, nor did he agree entirely with
Herbart that will was the reaction of ideas to external stimuli. Will as defined by Wundt is more closely allied to that postulated by Hume—feelings and will are essentially interrelated. Will and feelings are not identical, but all volitions necessarily include a feeling content; will is a composite of feeling and "Affekt". Characteristic of content psychology, will is described more as an end product than as a process. While feelings are the initial elements, will is the final result of the same process. Feeling and will are but two aspects of the same process. "In a concrete voluntary action the two are not different processes, but part-phenomena of one and the same process, which begins with an affective excitation, and passes over into an act of will." Both feeling and will are intimately connected with ideas and apperception. In fact, the separation between ideas and will is an abstraction only. "The separation between these processes is one that exists only in psychological abstraction, and has no basis in reality." In the same way impulse and will are not two different processes, but the same process under differing conditions: "...impulse is not a process which can be

---

Actually, idea and feeling are a unity; they become separated into objective and subjective phenomenon only by abstraction. In the same way, will and feeling are considered as two forms of experience and actually form a "psychical compound." Feelings constitute the internal accompaniment of concrete willing.

According to the Wundtian theory, will is the original energy of consciousness; in its primordial form it is a simple impulse derived from a previous sensation accompanied by some specific feeling tone. Every sensation whether simple or complex is characterized by a corresponding content of feeling which is followed by increased intensity and consequent movement. This series of actions or sequence of elemental states is an act of will. From a series of sensation-feeling-action contents results the unity of will activity. Volition forms the sum total product of these elemental states.

In contrast to the associationists, Wundt reduces will to a sequence of feeling states or emotional processes. Herbart, as we recall, had conceived of volition as a particular series or arrangement of cognitive phenomena. Consciousness of an end

\[22\text{Ibid.}, \ p. \ 225.\]
or goal was not essential to volition in Wundt's psychology of will. Many voluntary activities occur without previous cognizance of an end.

All those attributes of sensation which endow it with a vivid affective tone serve also to make the impression effective as a motive to will. In this case it generally happens that the impression, with its strong affective tone, is the only motive present in consciousness: the voluntary action is a simple, or, as it is ordinarily expressed, an impulsive action. All sense impulses are simply tendencies to will connected with definite sensations, i.e., they are feelings which have a strong tendency to pass over into actual volition.

But in course of time mind acquires various dispositions towards the renewal of previous ideas which are themselves connected with definite voluntary tendencies. An external stimulus will not any longer simply call out the impulse corresponding to it; but this impulse will increasingly tend to influence and be influenced by the dispositions already existing in the mind. These, again, may be transformed into conscious motives to will either by the external impression or by secondary influences.²³

The process of volition consists in the fusion of the essential constituents, and these are further divided into the

²³ Ibid., p. 232.
three complementary pairs of elementary feelings. Pleasantness
and unpleasantness, excitement and depression, tension and
relaxation are the elemental contents which fuse in any number
of different ways in order to form, ultimately, a will activity.
Without this particular concomitant fusion of feelings, no
volition can result. These feeling compounds, according to
Wundt, are essential to any and every act of will.

A voluntary action without feeling, one that follows from purely intel-
lectual motives, as many philosophers presuppose, does not exist at all.
On the other hand, the volitional processes are marked out from the
ordinary emotions by characteristics which give volition its peculiar
character...the end stage consists of characteristic feelings, which
always occur in essentially the same manner in all volitional processes...
They are very probably compounded of feelings of excitation, of strain
and of relaxation, as a closer subjective analysis and the concomitant
objective expression-symptoms, es-
pecially the movements of breathing, show. Excitation and strain precede
the conclusive act, relaxation and excitation accompany the act, and
continue for a short time after-
wards. It is obvious that the
numbers and the reciprocal action
of the motives are of decisive mo-
ment for the constitution of the
volitional process.24

24An Introduction to Psychology, Trans. from the 2d German
Wundt maintained that voluntary acts differ from impulsive ones by reason of their degrees of complexity. An impulsive act is simple and consists of only one objective content together with its concomitant feeling; voluntary acts always contain several of these objective contents or "motives" with perhaps one predominating in the focus of consciousness. Choice is always a voluntary act because of the complexity of motives which necessarily precede it. A conflict arises from the concurrence of several antagonistic contents which appear with clearness in consciousness. A process of selection follows, and this is the act of choice.

Wundt seriously endeavors to maintain some semblance of unity amid the evolitional series of elements, the formation of compounded feeling states, and the essential association of all these with apperception. All are said to be, first, interconnected among themselves; and finally, fuse with the ego to form a unitary state of self-consciousness. The unification of contents which constitute the volitional process is the self:

Furthermore, this unity of volition enables us to explain directly another fact to which we have already referred—the fact that the feelings of each moment unite in a single total feeling, whatever oppositions may exist between them. This total feeling is the resultant volitional tendency. 25

Wundt's theory of will reveals original and characteristic adaptations of principles established by associationism. He has built his system of content psychology upon a foundation which is thoroughly materialistic, and consequently will is defined solely in terms of sensory elements. Will as the termination of an emotional evolution became the orthodox definition of the Leipzig School, and was likewise accepted by the great majority of experimentalists who succeeded these pioneer investigators.

Oswald Külpe

Oswald Külpe stresses the subjective nature of will and distinguishes between the external and internal activities involved. Internal activities pertain to volitions which aim to affect the inner processes of ideation; will in its external capacity is concerned with bodily movements.

It is usual to describe the activity of will as external or internal, according as its aim or result is a bodily movement or a change in the course of ideation. Will, i.e., is regarded as a subjective power or capacity to exercise a determining influence upon conscious
processes or movements of the body.26

Though consciousness is usually involved in the process of will, it need not be, necessarily. The end product of will is conscious to the self, but the process of willing may or may not be conscious. The only difference between reflex movement and voluntary action is the consciousness of the end result. However, whether the movements be reflex or voluntary, consciousness is not a constituent of the process itself. "It is plain that a capacity of this kind need not be conscious. At the same time we do not ordinarily speak of 'will' except when we may assume that there is consciousness at least of the result of its activity."27

Unlike his theory of ideas and imageless thought, Külpe's explanation of will does not contain any irreducible element. Külpe and his Würzburg School, in their comprehensive studies and experiments on the thought processes, had concluded that ideas contained an element which was irreducible to feelings or images. Külpe's description of "imageless thought" had established a precedent among the German psychologists. Contrary to

27 Ibid., pp. 445-46.
the long-standing orthodox doctrine of Wundt, Külpe and the Würzburg School claimed that introspections offered conclusive proof that ideas contained an element which differed essentially from images and feelings. Ideas could not be reduced to these sensory elements, for the process of ideation contained an intangible quality not found in any of the elementary image and feeling states.

...the discussion of the will is rendered still more complicated by the question of whether the process of internal or external voluntary action anywhere contains a third qualitatively irreducible element, a specific voluntary act in addition to the familiar contents of sensation and feeling, the elementary nature of which is universally admitted. This last question may be ruled out of our present inquiry without hesitation...

In his previous considerations of will, Külpe had pointed out that such an elementary activity, even if it were found in volition, could not possibly be a distinguishing characteristic. Külpe thus reveals his confusion concerning will as an appetitive power and will as a rational power. He considers the dynamic nature of will to be its distinguishing quality; and whether or not the dynamic nature contains an irreducible ra-

28Ibid., p. 446.
tional element does not seem to be of great importance. Effort, spontaneity, and dynamism are the outstanding features; and these, in turn, can be reduced to sensations and feelings.

...the relative intensity of effort runs parallel to the relative intensity of the organic sensations; and wherever we find effort we find motor innervations; actual or ideal. Moreover, effort can be voluntarily aroused by the thought of a pleasant change of locality. The pleasantness in this instance simply acts as an effective stimulus to the origination of ideas of movement, and the sensations occasioned by the imagined movement of the limbs. The elementary will quality, therefore would seem to reduce to definite sensation qualities.

Like Wundt, Külpe describes will as a derivative factor of apperception. Wundt had made apperception the source of all mental life; this was true of the higher thought processes as well as of primary images and feelings. While Külpe perceived a more universal and immaterial quality in ideas, he did not perceive the same rational attribute in will. He followed the traditional theory of Wundt and the Leipzig School who defined volition as a particular form of the feeling states and of apperception.

---

29 Ibid., p. 267.
Hence we shall prefer to adopt Wundt's view, which considers apperception and will as ultimately one and the same function. For the characteristic energy which we attribute to will, the energy which makes it the supreme power in our conscious life, would seem to flow from one single source, in apperception. All the peculiar attributes of perception are also predicable of will; so that will we may see, is only a special mode of manifestation of apperception. The phenomena of will are thus seen to be referable partly to the laws of reproduction, and partly to apperception.  

In general, there is little difference between Külpe's theory of will and that of Wundt. However, others of the Würzburg School through experimental procedures arrived at conclusions which revealed a more thorough study of the volitional processes. As we shall see later, Ach found that will contains a factor which cannot be explained entirely either in terms of feelings or of sensations.

Theodule A. Ribot

Ribot's physiological theory of will may well represent the extreme position of materialistic determinism. The source of volitional activities is found either in the physiological

30 Ibid., p. 450.
networks of the human organism or in the instincts, appetites, and passions. Operations of will are the responses of the physiological mechanisms to outer stimuli. Like the Behaviorists, Ribot actually identified will with the sum total of responses evoked from the human organism by its environment.

Every voluntary act consists of two separate elements: (1) the consciousness of self as a willing self; (2) a psychophysiological mechanism which is the source and seat of all volitional power. Voluntary acts are the natural outcome of will acts which are either impulsive or inhibitive. Thus, the state of consciousness represented by the "I will" always tends to express itself in a physiological mechanism or by means of a physiological act.31 These responses may be either conscious or unconscious. Volitional responses follow the fundamental law of physiology, which states that reflex action is the source of all human activity.

Ribot divides appetition into higher and lower states. Both elementary and higher forms of affective movements are physiologically the same; they differ only in regard to the

---

31 "...dans toute acte volontaire, il y a deux éléments bien distincts: l'état de conscience, le "Je veux", qui constate une situation, mais qui n'a par lui-même aucune efficacité; et un mécanisme psychophysiologique très complexe, en qui, seul réside le pouvoir d'agir au d'empêcher." Les Maladies de la Volonté Paris: Ancienne Librairie Germer Baillière et Cle, 1893. p. 3.
state of consciousness involved in each. Desire is an affective state which is physiologically a degree higher than that of a reflex state because of a more intelligent degree of consciousness which accompanies it. Ideomotor activities are still higher in the series of volitional movements and indicate a more marked degree of individuality in the organism. These activities are movements which result from ideas or thoughts. Ribot characteristically explains all from a physiological standpoint. Thoughts are referred to as mental states which are comprised of both motor and sensorial elements. Some elements, especially those involving sight and touch, are inevitably accompanied by physical movements. This is true to some extent for all mental phenomena, so that movement is always an integral part of images and ideas.

Ribot believes that some physiological movement is always necessary in order to perceive an object in reality. The same process occurs when "we see an object ideally."

Ribot does not restrict the motor activity solely to the performances or movements which follow perception and thought.

---

32...que nos perceptions, en particulier les importantes, celles de la vue et du toucher, impliquent à titre d'éléments intégrants des mouvements de l'oeil ou des membres; et que si, lorsque nous voyons réellement un objet le mouvement est un élément essentiel il doit jouer le même rôle, quand nous voyons l'objet idéalement. Les images et les idées, même abstraites, supposent un substratum anatomique dans lequel les mouvements sont représentés en une mesure quelconque. Ibid., p. 7.
Perceptions and ideas contain within them a motor element distinct from that which is involved in the fulfillment of volition as such. In order to have an idea of an object, muscular activities are required. These activities form the intrinsic motor element which, in turn, is a constituent of every state of consciousness. Movements which result from perceptions or ideas are called the extrinsic motor elements, and the purpose of these elements is to express outwardly the existing state of consciousness.

Though affective movements proceed from an idea, it is really not the idea which produces the movement; it is rather the physiological accompaniment which is responsible for every volitional activity. The physiological state is "transformed into an act." Volitional acts can be defined only as movements which occur in some stage of the progressive evolution of physiological activities. The series originates in the most primitive movements, pure reflexes, and extends to abstract thought when the "tendency to action is at the minimum." It may at times be impossible to know which is volitional activity and which is purely physiological response, for the evolitional progression is oftentimes almost imperceptible. 33

33 "...l'activité volontaire nous apparaît comme un moment dans cette évolution ascendante qui va du réflexe simple, dont la tendance au mouvement est irrésistible, à l'idée abstraite, où la tendance à l'acte est à son minimum. On n'en peut fixer regoureusement ni le commencement ni la fin, la transition d'une forme à l'autre étant presque insensible."

Ribot's theory of will is little else than a descriptive interpretation of the physiological movements which he associates with perception and thought. The ultimate source of will is a reflex mechanism; and therefore, will, like all other mental phenomena, is essentially physiological in nature. 34

Even the materialistic psychologists did not accept the extreme views proffered by Ribot. The psychological aspect of will were minimized to such an extent as to reveal a lack of consideration for psychic factors and an exaggerated emphasis on the physiological groundwork of mental life. Over and above the anatomical basis of cerebral physiology, introspection and experience give evidence of immaterial mental phenomena both in the cognitive and appetitive orders. Furthermore, the generalizations of Ribot's theory are for the most part unauthenticated. Volition is purely a rational process, and there is no definite evidence that physiological correlations exist.

Alexander Bain

The hedonistic theory of will is best represented by Bain's interpretation based on the pleasure-pain principle which is the core of his entire philosophy of man.

34 "Les réflexes cérébraux, surtout les plus élevés, consistent en une reaction adaptée à des conditions très complexes, très variables, très instables, différent d'un individu à l'autre, et d'un instant à l'autre dans le même individu. Ce sont les réactions idéo-motrices, les volitions." Ibid., p. 25.
Bain begins his explanation of will by describing its two components: "These are, first, the existence of a spontaneous tendency to execute movements independent of the stimulus of sensations or feelings; and, secondly, the link between a present action and a present feeling, whereby the one comes under the control of the other." 35 Bain gives great stress to the influence and importance of the dynamic element which exists in every form of mental life. All sensations contain an active component which makes them independent of external stimuli. The basis for this assumption is neurological, "such as the physiological fact of a central discharge of nervous energy where no stimulus from without is present as a cause." 36

The remotest beginnings of voluntary actions are found among these many and diverse spontaneous movements: the locomotive apparatus including all the various movements of muscles and limbs; the voice, tongue, and mouth which involve many minute communications with brain and nerve centers. In all these interrelated but isolated movements are found the origins of voluntary actions. The prime source of volition, then, is spontaneous movement. Circumstances peculiar to each

36 Ibid., p. 304.
individual increase or diminish the discharge of the inherent spontaneity. For example, natural vigor of constitution, stimulants, such as excitement, pleasure, and pain, are all contributory factors to the amount of spontaneous action discharged by the organism. From these sources is derived the mode of operation peculiar to volition.

Bain maintains that, besides the element of spontaneity which characterizes the volitional process itself, there is another integral component, namely the purpose or aim towards which the will strives. It is this consideration which reveals the intimate relationship between feeling and action. Pleasure and pain in general, whether derived from organic sensations, the five senses, or any of the emotions, are the motive powers of all volitional activities. These motives in any of their various forms determine us by their existence whether the latter be actual, real, present, or whether their existence be only ideal. An ideal motive of pleasure or pain is explained in terms of "provision." Precaution against causes of illness, attacks upon our person or possessions, may well exemplify the "ideal" actions of these motives. Retentiveness and repetition strengthen whichever motive exists.

It may oftentimes happen that a conflict arises amid a concurrence or complication of motives, and in such a case, the
form of voluntary action called deliberation results. Closely
linked to deliberation is the consciousness of effort mani-
festated only in maturity. Bain, however, attaches great impor-
tance to the feeling of effort.

We know from experience that movement of some kind is the
bringer of pleasure and the dispeller of pain; we are therefore
urged to begin moving, although quite at random; if the movement
succeeds, it is kept up without conscious effort, although it may
also be aided by conscious effort. If it fails or makes bad worse,
there is the same double influence to stop it; the primordial
feeling, and the conscious exertion.

This conscious effort is no doubt the prominent fact of the
will in mature life... We are said to make a great effort to
exert ourselves, to show great resolution, determination, or
strength of will, all of which means that the motive is matched
by its opposition.37

Conscious effort, however, is not the cause of voluntary
motion; it is rather the phenomena of pleasure and of pain
which are the sources of volitional power. Pleasure and pain
are the motive forces of all voluntary action and are derived
from the nervous and muscular systems of the organism.

37 Ibid., p. 320.
A voluntary act (as well as some acts not voluntary) is accompanied with a consciousness or feeling of which there may be several sorts. The original motive is some pleasure or pain, experienced or conceived. The active exertion is accompanied with the muscular consciousness, agreeable in states of vigor, painful under exhaustion or fatigue, and often as regards pleasure or pain, indifferent.\footnote{Ibid., p. 421.}

All the various aspects of volition which Bain discusses in his lengthy dissertation on will are essentially related to the feeling states. Deliberation, resolution, consciousness of effort, desire are all ultimately rooted in the pleasure-pain principle. Whatever the form of volition in question, either pleasure or pain constitutes its mental antecedent and its primary source of power.

The pleasure or pain, that is, the mental antecedent of a voluntary act, is embodied in the nervous and other organs, and rises or fails with their physical condition. When a feeling of either sort prompts the voluntary executive, a new kind of consciousness arises, that amounting to the expenditure of motive power; but in a way, if possible still more decided, does this consciousness
repose upon material processes. The nervous centers are drained of their energy, the muscles part with theirs, and in a very short time the whole system is run down like a steam engine with its fire burnt out.39

An interesting feature of Bain's theory is the distinction made between reflex and voluntary actions. Here again we note the great predominance and significance of the feeling states in all motor activities. It is the intervention of feeling which gives to an action its volitional character. Feelings are not indispensable to reflex movements, for they are purely mechanical and devoid of conscious effort. "Voluntary actions are distinguished from reflex and spontaneous activity by a directive intervention of a feeling in their production."40

Modern psychologists have been greatly influenced by the pleasure-pain principle of Bain. This is the case especially in the study of will. Activities, both executive and inhibitory, are on many occasions prompted by pleasure and pain, respectively. At times, such actions are spontaneous, or at other times pleasure and pain may be concomitants; but volition itself is a power over and above all physical and material factors. Modern psychologists, inspired by predecessors such as

39 Ibid., p. 475.
40 Ibid.
Bain and others, identify the spontaneous physical movements of the body with the immaterial dynamism of will. The error is a common one and the basis of much antagonistic controversy between materialists and scholastics.

William James

The psychology of William James is oftentimes summed up in the single descriptive phrase, a stream of consciousness. Opposed to the elementarism of Wundt, James emphasized the process, the flux, the stream of consciousness which he established as the underlying substrata of mental life. Wundt's theory had divided and subdivided the whole of consciousness until all mental activities had come to be static elements, interrelated but never entirely amalgamated by a common bond into a substantial unity. Wundt stressed the unity of self, but against the oneness of the ego, each mental element stood as a separate entity in bold-faced relief. Elementarism had been characterized by sterility. James, on the other hand, maintained that any attempt to split consciousness into series of mental elements was bound to distort the realities of mental life. Therefore, he emphasized the activism of mind, and in his treatment of will, the opposition to elementarism is particularly noticeable.
James's classical theory of volition is characterized by two outstanding factors; "the feeling of effort," and "ideo-motor action." Many of the leading authorities, such as Wundt and Bain, had upheld the "principle of innervation", namely that effort was effected by the movement of different sensations. Besides the necessity for imagery, the innervation theory held that voluntary acts only required an outgoing current of energy from the brain to the muscles for the performance of these acts. Each outgoing current was charged by a specific feeling. James rejected this principle of innervation because he found that all feelings were sensory and therefore afferent.

But in spite of the authority which such writers deservedly wield, I cannot help thinking that they are in this instance wrong,—that the discharge into the motor nerves is insentient, and that all our ideas of movement, including those of the effort which it requires, as well as those of its direction, its extent, its strength, and its velocity, are images of peripheral sensations, either "remote," or resident in the moving parts, or in other parts which sympathetically act with them in consequence of the diffusive wave.41

According to James, primary functions of the organism include reflexes, instincts, and emotions; volitional activities are secondary ones. Before volition can take place, other requisites must be fulfilled. A movement of will follows only when kinaesthetic images, i.e., revived memory images of acts already experienced, have preceded. "...Whether or not there be anything else in the mind at the moment when we consciously will a certain act, a mental conception made up of memory-images of these sensations, defining which special act it is, must be there."^42 James refuted the principle of innervation and substituted his own "feeling of effort", as a result of his personal introspective studies. Introspection, as far as he was concerned, revealed no basis for the innervation of energy, but definitely gave evidence that kinaesthetic images always precede voluntary movements.

An anticipating image, then, of the sensorial consequences of a movement, plus on certain occasions the fiat that these consequences shall become actual, is the only psychic state which introspection lets us discern as the forerunner of our voluntary acts. There is no introspective evidence ever of any still later or concomitant feeling attached to the efferent discharge.^43

^42 Ibid., p. 492.
^43 Ibid., p. 501.
Fundamentally, James's "feeling of effort" corresponds to the views of these associationists. Though disagreements arose as to the direction pursued by the current of energy, the origin of stimuli (whether they be central or peripheral), and other matters of detail, both the theory of innervation as upheld by Wundt, Bain, and others, and the theory proposed by James affirm that voluntary action results from involuntary movements. All that is actually required for voluntary actions are mental conceptions composed of various sensorial images. Unless rational thought plays a part in the establishment of the images of movement, the intellectual source of volitional activities is completely wanting in both the "principle of innervation" and James's "feeling of effort."

According to James, ideo-motor action is the real response which follows, "unhesitatingly and immediately", the preconceived kinaesthetic image. In such voluntary actions there is no preceding conflict of notions. Thus, an act is brought about by an idea of the act. To imagine a particular action is to arouse a strong tendency to perform the same action. As attention to the action increases so does the idea tend increasingly to express itself outwardly. "The effort of attention is thus the essential phenomenon of will."

44 Ibid., p. 562.
action is to follow the idea, the idea must be held steadily within the focus of attention. Thoughts, images, mental contents of varying kinds are constantly flowing through consciousness. It is the function of attention to sustain the idea, to hold it firmly within the field of consciousness, so that it may be realized through the medium of motor activities.

And with his consciousness, his action changes, for the new object, once stably in possession of the field of his thoughts, infallibly produces its own motor effects. The difficulty lies in the gaining possession of that field. Though the spontaneous drift of thought is all the other way, the attention must be kept strained on that one object until at last it grows, so as to maintain itself before the mind with ease. This strain of the attention is the fundamental act of will.45

Ideo-motor activities are mostly spontaneous, and for this reason are not dependent upon any underlying pleasure-pain principle, as Bain had insisted. James found sources other than pleasure or pain which gave rise to voluntary actions.

...I am far from denying the exceeding prominence and importance of the part which pleasures and pains, both felt and represented, play in the motivation of

our conduct. But I must insist that it is no inclusive part, and that co-ordinately with these mental objects innumerable others have an exactly similar impulsive and inhibitive power.46

Nor does James identify volitional effort with muscular conation, as many others have done. It is the purpose of volitional effort to represent to the mind whatever muscular activities take place, but volitional effort is clearly distinguished from visceral and muscular movements. "This volitional effort pure and simple must be carefully distinguished from the muscular effort with which it is usually confounded."47

Previous to acts of decision, various kinds of voluntary processes occur. James designated five distinct types of decision which correspond to the several kinds of preliminary mental activities. (1) The reasonable type, where the process is mostly a matter of rational balancing, resulting in favor of one alternative. (2) The decision is one of acquiescence to pressure of circumstances. (3) The individual, overcome by internal conflict, commits himself to one or the other. (4) Conscience enters in to regulate our decisions. (5) Decision is deliberately made with the "feeling of effort". Upon

46 Ibid., p. 558.
this division of voluntary decisions, James developed his temperament types.

In general, the theory of will proposed by James is characterized by two predominating notions: (1) that voluntary movements are aroused only by kinaesthetic images; (2) the idea of movement inevitably tends to be realized by motor activities. The universality of these principles is doubtful. The emphasis on kinaesthetic imagery, whatever may have been their source, as the primary and necessary basis for voluntary movements is indicative of James's attitude concerning the higher intellectual processes. He was convinced that psychology had overly emphasized the importance of man's intellectual nature; and, accordingly, emphasized volitional activities, although these, in turn, seem basically determined by physiological processes. Consequently, will as a rational, immaterial faculty, intrinsically independent of sense imagery and feeling, found no place in the psychology of James.

G. F. Stout

Stout's theory of will holds a central position and in some respects is related to many of the prevailing schools of thought. His explanation of will is not characterized by any unique interpretation nor is it derived from hypotheses.
specifically his own; it is notable rather for its eclecticism. Stout's theory includes a number of viewpoints already expressed. He has combined and incorporated into his own system of thought, various principles adopted from his predecessors and contemporaries—those principles which he judged to be best and suitable for a common sense psychology.

Stout's psychological theory is established upon a philosophical groundwork—Kant's categorical imperatives. The three aspects of mind, namely cognition, affection, and conation, formed the basic structure of Stout's concept of mind. He was the first to popularize the use and modern meaning of conation, a notable precedent in the history of contemporary psychology.

Volition is defined as "the intention or determination to act, not the mere production of movement; otherwise all reflex action would be volition and we might regard the muscles themselves as the seats of the will."\(^{48}\) Stout emphasizes this distinction throughout his discussion of voluntary movement, but he describes intention and volition as inseparable. There can be no volition without a previous intention to act.

Conation is used as a general term including all forms of appetition. Stout speaks of higher and lower forms of conation,

---

and the distinction between them is based upon the level of cognition which precedes them. Conation following sensory perception is impulsive movement, while ideas induce "generalized conative tendencies."

\[\ldots\text{we may distinguish different levels of conative process as connected with different levels of general mental development. On the plane of perception we have the perceptual impulse; this includes instinctive impulses. Its general characteristic is that the activity involved in it finds immediate expression in bodily movement guided by external impressions.} \ldots\]

But we reach a distinctly higher plane when ideas become sufficiently selfsustaining to form trains that are not wholly shaped.\(^49\)

Stout is also careful to point out the significant differences between conation and the feeling states. Pleasure and pain are dependent upon the success or failure of efforts exerted by conative energy. Feelings are either concomitants or resultants of conation and cognition, but are not the determinants of either.

The essential point in Stout's doctrine is the unitary nature of conation and cognition. Both are but aspects of one

\(^{49}\text{Ibid.}, \text{ pp. 704-705.}\)
and the same process. There is no question of conation being secondary to cognition. Such an assumption might imply two separate processes, which is contrary to the whole of Stout's doctrine. "Cognition gives the process its determinate character: without conation there would be no process at all to have a character." Though it is true that the interrelationship between cognition and appetition is such that both are mutually interdependent in regard to the operation of each, there is sufficient evidence that the two are distinct processes. St. Thomas is explicit on this point.

What is apprehended and what is desired are the same in reality, but differ in aspect; for a thing is apprehended as something sensible or intelligible, whereas it is desired as suitable or good. Now, it is diversity of aspect in the objects, and not material diversity, which demands a diversity of powers.

In voluntary decisions, Stout stresses the significance of self-consciousness. Deliberation intervenes in all voluntary decisions, and deliberation involves referral to the self of all possible courses of action. In voluntary decisions, it is necessary that the action be realized by the self as the agent's

---

50 Ibid., p. 704.
51 The Summa Theologica (ed. Pegis) I, lxxx, a.1, ad 2um.
own action. That the self become cognizant of the action at hand as an integral and permanent part of its own unity, is essential to every voluntary decision.

What is distinctive of voluntary decision is the intervention of self-consciousness as a cooperating factor... If a conation is realized, the completed action becomes part of the life history of the agent. If in contemplating it beforehand the agent takes this into account, if he asks himself whether he really wants this action and so to become included in his own conception of himself, he is on his way to the forming of a voluntary decision.52

Throughout the process of deliberation various motives are weighed and balanced; the value of each as well as the plausibility of incorporation with the self is carefully considered. So far, these are merely the extrinsic motives for deciding. Once the decision has been made the motive becomes an integral part of self and now becomes a motive for action. "The recognized reasons for a decision can never constitute the entire cause of a decision. Behind them there always lies the self as

a whole and what this involves can never be completely analyzed or stated in the form of definite reasons or special motives." 53

Stout, for the most part, has avoided many of the pitfalls found in the doctrines of extremists. He has endeavored to maintain a common sense viewpoint in his explanation of will. The most serious criticisms which we must offer against this doctrine is the failure: (1) to distinguish conation from cognition; (2) to make an essential distinction between the "higher and lower levels of conation." Though the influence of Stout on contemporary psychologists is not as prevalent as that of James, it is notable among particular schools, especially the Hormic School of thought under McDougall's leadership. The principle of self-consciousness as an essential will factor, together with the basic identity of cognition and conation, was adopted by McDougall in his psychology of instinct.

James R. Angell

The functionalism of Angell had for its particular task the study of mental processes as contrasted to the study of mental elements pursued by the structuralists. The functionalists made special attempts to discover the mode of operation,

the ends achieved, and the attending circumstances of all our mental processes. Volition, as well as emotion and instinct, because of its dynamic nature, was among the chief concerns of the functionalists. Wundt and Titchener had described mental life in terms of contents, states, and apperceptions. The spontaneity and forceful energy of the appetitive faculties had created many difficulties for the structuralists who could only offer inadequate explanations in terms of static elements. Consequently, emotions, instincts, and will had been relegated to the background, and apperception had been established as the source and primary content of all mental phenomena. But the functionalists were interested in mental processes and in mental activities as a part of a vital living organism.

Angell does not refer to will as a specific faculty but rather to the volitional process of mind. Will is the mind in toto, acting in the capacity of a directive force. As a reactionary measure to structuralism, every attempt is made to avoid any notion of mind which implies a division of powers or a separation of mental contents. Hence, perception is mind experiencing a sensory synthesis; ideation is mind in the process of cognizing; volition is mind directing the mental forces to some preconceived goal. Mind is a whole, operating now in one capacity, now in another, and is never to be considered as a conglomeration of individualized elements.
Scholastic psychology has likewise persistently endeavored to preserve the unity of mind in all its operations. But instead of saying that mind is a whole, they say that the person possessing a mind is and acts as a whole. While the whole man is involved in every vital act, there is ample evidence in our experiences to show that at times one or another process predominates, and that mental processes dominate and give direction to the whole person. It is true that the whole mind is involved in every mental operation, yet not all mental acts are of the same kind. The mind can act and be known to act on various levels and in various capacities. While the Scholastics refer to the faculties or powers of a unified person, Angell prefers to speak always of mind as will, or mind as thought. When he speaks of volition he is speaking of mind in its totality, as engaged in the process of willing. Will refers to the whole mind exercising one type of activity and does not designate a specific faculty or operation of mind. Will is mind and mind is will. It is necessary that we make this clarification in Angell's theory, for this particular concept of will and of mind is the fundamental tenet of functionalism, and it stands in opposition to the principle that an act is distinct from the agent.
For Angell, willing is the mind engaged in the process of organizing and assembling its forces for some set purpose. In order to direct itself towards a goal it is necessary for mind "to attend". Willing is, in reality, attending to a specific object or goal. "Choice, decision, will, in the fullest sense of the word seems to arise out of such circumstances, and those impulses and ideas which succeed in gaining our persistent attention are forthwith translated into action. Willing is therefore in the last analysis a psychological process of attending."⁵⁴

Volition and attention are closely allied, but to identify them as Angell does is to increase the confusion already existing in dynamic psychology. Attention is often involuntary; for example, a sudden noise often attracts us without any directed effort of attention on our part. Will, therefore, is a power over and above attention. It is true that a complementary relationship exists between attention and will, since attention contains a cognitional element also. In order to will we must cognize; in order to cognize we must attend.

Angell's analysis of volition includes three elements; namely, foresight, consent, and muscular movements (for

purposes of obtaining the desired end). It is obvious that in many voluntary acts bodily movements are required. But Angell extends the necessity of muscular movements to will-acts as well as to voluntary acts, and claims that thought itself requires a "motor attitude."

Inasmuch as certain decisions seem primarily to concern our trains of thought, rather than our muscular activities, as when we resolve to continue a course of reflection, our formulation may appear to emphasize unduly the motor features of volition. But it must be remembered that voluntarily carrying on a process of thinking required the securing of definite motor attitudes, and furthermore that all such thinking has as its purpose some future action, however long deferred we may expect this action to be.55

Whatever muscular movements take place in the performance of voluntary actions, we must consider such movements only as concomitants of volition, certainly not as an integral part of will itself.

The functionalist theory of will places specific emphasis on the relationship between sensory ideational elements and

volitions. Some sort of knowledge must be had before volition occurs. "We may safely start, then, from the assumption that every voluntary act involves the presence in the mind of sensory or ideational material in some way anticipatory of the act." This assumption definitely establishes a differentiation between will and reflex, since the latter requires neither consciousness nor cognizance of any kind. But does this assumption provide any well defined delineation between will and instinct? Instincts, as commonly accepted by Scholastics, involve consciousness of a goal, but not abstract intellectual knowledge of goals and motives, whereas reflexes do not even require consciousness. Will is essentially of an intellectual nature, and sensory knowledge, alone, is inadequate to evoke the volitional process. It is necessary that all activities of will be preceded by intellectual perception. Angell's analysis is vague on this point; he merely states that sensory-ideational elements must precede voluntary movements. Whether these elements be rational ideas or sensory images only does not necessarily have a bearing on the volitions which result."...in certain cases the idea which apparently controlled the voluntary act was an idea of the movement itself...in certain instances kinaesthetic sensations and images furnish us the material by

56 Ibid., p. 398.
means of which we practically anticipate, and so control, the
movement we wish to make."\(^{57}\)

In keeping with the evolitional fundaments of function-
alism, Angell speaks of controlled voluntary movements as an
outcome of gradual growth. The spontaneous movements of the
infant, through maturation, develop into the controlled move-
ments of the adult. It is not a case of the predominance of
rational powers over the sensory which brings about voluntary
control, but, rather, a case of physiological transition and
increased muscular coordination which accounts for volitional
power. The impulsive, random movements of childhood constitute
the elementary stage of volition; voluntarily controlled move-
ments, those of mature life.

We may lay down two general pro-
positions...(1) that all voluntary
control is built upon a foundation
of movements which are already
going on in an uncontrolled impul-
sive way; and (2) that the develop-
ment of control, although from the
beginning it extends in a measure,
perhaps, to all the voluntary
muscles, proceeds more rapidly,
now in one group and now in
another... Volition must not, then,
be thought of as a process in which
consciousness somehow brings into
life movements which previously did
not exist. The problem of the

\(^{57}\)Ibid., p. 401.
evolution of control is primarily the problem connected with the coordinating, in reference to certain ends, of movements already occurring in an uncoordinated way.

Volition is important to the functionalist because it is characterized by movements—it is a process, a function. The singular importance of will as a psychological power is derived from its dynamic nature, not from its immateriality. All consciousness is conative; all imagery tends to produce motor changes; but, according to Angell, volitional processes, like instincts and desires, are of special significance because of the directive forces they possess, not because of their supremacy.

Charles H. Judd

Functionalism represents the American expression of opposition to the domination of the Wundtian School and its offspring, structuralism. However, among the functionalists are those who have manifested individualistic tendencies and theoretical developments in their writings on many of the various problematical issues of psychology. They have sought to develop a functional view of mental life in general, but have,
at times, clung to other trends and influences. Consequently, their works reveal interesting personal interpretations superimposed upon the fundamentals of functional psychology. Among such followers of the functionalist school is C. H. Judd. Though he had received the greater part of his training at Leipzig under Wundt, Judd wholeheartedly adopted the spirit of functionalism. His psychological works were written from the functionalist standpoint, but the influences of Wundt's teachings as well as those of William James are everywhere evident.

According to Judd, the volitional processes like all other mental phenomena are an outgrowth of a genetic process. Thus, in order to understand volition which is the highest and most complex form of human dynamics, we must first know something about impulse and reflex which represent appetition in its most primitive stage. Reflex activity is the simplest and most direct form of behavior. It is not accompanied by a high degree of consciousness, and is devoid of any previous deliberation whatsoever. From the pure reflex just described, all the way up the scale to voluntary choice, are innumerable degrees and grades of impulsive activity. Sensation-reflexes, perceptual-responses, volitional processes—all contain within their own group an ascending order of complex movements, and these groups themselves form an ascending series of categories among all appetitive responses.
In Judd's theory, an impulse proper differs from a reflex in so far as it is a response, not to one sensation, but to complexes of sensations or percepts. The impulsive response may be the same kind of muscular movement as the reflex, but its determining factor lies in the percept or sensations which precede it. The complexity of reflex, impulse, or volition is dependent upon the nature of the perception which is the effective cause of every movement.

Unlike many of his contemporaries, Judd makes special efforts to clarify the relationship between attention and volition. Attention has oftentimes been identified with conation, or defined as a form of volition. Judd points out that attention, of itself, has no power to determine action, but rather is dependent upon a higher directive organization. Common examples of life around us afford ample proof that this principle is true. While food and enemies engross all of an animal's attention, there is an endless variety of objects which attract man's attention. The reason for this differentiation is found in the organization of experience which is an integral part of the self. The animal is limited by his nature to a narrower scope of experience; therefore the objects of his attention will be so confined within limits as to conform with the organization which precedes his attention.
Neither attention nor bodily movement can be used to explain the other factor of the situation, because...attention is always related to the organization of behavior, and behavior is, as we find in many cases, related in some way to attention. The two must be accounted for by some more ultimate fact of organization, which precedes both. If this more ultimate explanation is neglected, the whole process may take on the appearance of an event without antecedent conditions. 59

According to Judd, in man, deliberation frequently precedes attention, for we find ourselves attending to an object which we have already decided upon as an object of our choice. Attention is involved in both deliberate and impulsive activities, and we see from these observations that some force other than attention is responsible for dynamic movements. Judd, however, in all these explanations, is emphasizing the importance of previous individual development from a genetic angle and not for the purpose of elevating volition because of its rational nature. The directive force, referred to by Judd as a prerequisite for attention, is the total organization of experiences, and is an outcome of the progressive evolutionary developments. In man, therefore, the organization of behavior includes

the more complex form of perception and responses, and has provided him with a more extensive field of experiences; but the animal, whose life is restricted to the sphere of instinct, possesses a far more limited and circumscribed background. In both man and animal the organization of background experiences is rooted in the physiological systems; thus behavior, whether it be primitive or complex, is ultimately determined, for the most part, by the nervous and muscular systems. "...in the simplest impulsive activities and in the highest forms of voluntary choice, there are elements which can be explained only in terms of nervous organization."60

Volition is intimately concerned with the sum total of relationships existing between the self and the external world. When conflicting tendencies arise, volition is the means of expression used by the self in its endeavor to preserve the internal unity which constitutes the essence of self. Whatever the object or event may be, the self, by comparison, judgments, and reasonings, forms a relationship between itself and the object concerned; and thus maintains an equilibrium and stability within its own organization. Reactions, modes of behavior, simple or complex responses are all controlled by the integrated system of ideas which constitute the self. Conflicts

60 Ibid., p. 318.
which arise or impulses which have been suspended are also results of the self, acting in behalf of its own unity. In these latter cases the relationship has proven to be negative; the impulse is withheld because it does not compare favorably with the hierarchy of ruling interests and ideas of the self. Conflicts arise for the same reasons. Impulses or tendencies strive for fulfillment, but are counteracted by stronger impulses or movements which are favorable to the individual organism.

The truth is that the explanation of volition as a part of self-consciousness can be given only by a recognition of those processes of organization which have entered into the elaborate construction of the concept of the self. When one says that he has decided not to perform a certain act, he has, to be sure, given the highest possible expression of his own self-control, but self-control in this instance cannot be explained without some reference to the origin and development of the self.61

Conforming closely to the functionalist school, Judd explains volition as the total self reacting to an object or situation. Will as a single faculty or power is only an abstraction, not a reality. Whatever activity is concerned, be

61 Ibid., p. 329.
it reflex, impulse, or volition, in actuality it is the whole organization of previous experiences, together with the entire system of ideas, which is operating. Since any activity affects the behavior of the whole organism, the physiological system is likewise intimately involved. Reflex, impulse, voluntary movement, and choice are developmental forms of movement, and represent the various stages of maturation from the most primitive response to the more highly evolved and complex reactions.

The tendency, therefore, as development goes forward, is to adjust thought processes to the possibilities of behavior and to the canons of criticism described in the discussion of conceptual thought with ever increasing recognition of certain fixed modes of procedure. Here again, we have clear evidence that the processes of development and the processes of conscious choice are intimately related, and we see again the impossibility of explaining thought and conduct, even at this highest level, without direct reference to the total development of the individual.62

Judd's theory is particularly emphatic on the genetic origin of will activities. While Angell stresses the functional importance of will, Judd is more concerned with its evolutorial history. Though Judd is a devoted disciple of functionalism,

62 Ibid., p. 332.
his works reveal influences resulting from the principles of sensism instilled in him during his early training.

Charles Spearman

One of the most scientific approaches to the problems of psychology has been made by the Factor School of Charles Spearman. According to the theory proposed by this school, intelligence contains a general factor of ability besides a large number of specific abilities. The "g" factor, or general intelligence, is operative in all the powers of an individual, while the "s" factor, or specific ability, varies from one power to the other. Mathematical formulas are used to determine the relationship between the various kinds of cognitive performances. These relationships are indicated by correlation coefficients. When two compared abilities coincide, the coefficients become a unity; when the relationship is a negative one, the coefficients are zero. By means of his statistical analyses, Spearman concluded that the two factors, "g" and "s", are the fundamental elements of intelligence. Both factors ultimately are based on physiological brain substrata. The nature of the "g" factor corresponds to a general cerebral power or energy, but the nature of "s" is characterized by its special motor power operating in a more restricted and channeled area.
The factor was taken, pending further information, to consist in something of the nature of an 'energy' or 'power' which serves in common the whole cortex (or possibly, even, the whole nervous system.)

But if, thus, the totality of cognitive operations is served by some general factor in common, then each different operation must be further served by some specific factor peculiar to it. For this factor also, a physiological substrata has been suggested, namely, the particular group of neurons specially serving the particular kind of operation. These neural groups would thus function as alternative 'engines' into which the common supply of 'energy' could be alternatively distributed.

Spearman's description of "distributed energy" based on physiological processes is similar to McDougall's "drainage theory." However, Spearman constantly endeavors to establish the higher cognitive processes on a level of their own. In all these sincere attempts he never quite relinquishes the physiological substrata, even in describing the nature of intellect and will.

Besides these fundamental factors, "g" and "s", there are others which play an important role in our life. Among these is the "w" factor, or will. The will factor is primarily

---

concerned with character development and morality. Individuals who possess a large percentage of "w" are motivated by reasonable principles, while those who possess "w" to a lesser degree act more on impulse, and are motivated by the lower feeling states. As the basis for all these factors, Spearman sets forth several laws, which, because of their generality and ultimacy, are considered "irreducible minimums." Among the five quantitative laws is the law of control in which volitional factors are concerned.

Though Spearman's explanations of the faculties are on the whole very conformable with Scholastic teachings, one criticism which must be mentioned in regard to his concept of volition is his variable use of terms. Conation, attention, volition, and orexis are sometimes used interchangeably; it is difficult, if not impossible, to know precisely what is meant by each. Attention is referred to as conation: "...the term attention could be replaced by, or defined in terms of, others which had suffered less from ill usage. In particular, it has been found to indicate a mental constituent which could be described as a seemingly forceful trying or striving, or 'conation'."64 Discussions of will and volition are included in the explanation

of the law of control. The latter is said to consist of three phases: "A person makes up his mind to listen (resolution); at the chosen moment he accordingly tries to hear (conation); and in consequence he actually may hear." 65 From this description it would seem that conation is a particular stage in the volitional process. Actually, conation, considered from the standpoint of physical effort, striving, or set, is merely a concomitant of volition and is frequently entirely absent from will acts. In this particular explanation of the "law of control," Spearman refers to conation in its restricted meaning, that of physical effort. In general, however, Spearman defines conation as a term which "includes all impulses, desires, or acts of will, and no less all consent, satisfaction, or dissatisfaction." 66 When conation is used as a general term for all forms of appetition, it is evident that it cannot be identified with volition. Nor can the terms be used interchangeably, as we have already seen in Chapter I. 67 The preservation of careful distinctions between general and specific terminology, and between rational and sensory levels of

65 Ibid., p. 72.
66 The Nature of 'Intelligence' and the Principles of Cognition, p. 53.
appetition is of vital importance to the psychology of will. 68

In spite of these criticisms there is much to be said in favor of Spearman's exposition of volition. In his evaluation of volition as conceived by the associationists, it is clear that Spearman rejects will as a purely sensory phenomenon. Will is not merely a muscular tension as the physiologist, Ribot, claims, nor is it a motion which follows an idea and is motivated by the feeling of pleasure, as Hume and Hartley claim it to be. According to Spearman, the behaviorists, in their attempts to destroy all motives, purpose, and goals, have resorted to the most extreme form of radicalism in will psychology. While the associationists reduced will to impulse, there was at least impulse left; the behaviorists, in eliminating goals and purpose, have eradicated all appetition from the content of psychology, sensory as well as rational.

The fate of psychology, if it were really to be pursued on this principle, baffles the imagination. No account is to be taken of whether any movement is made intentionally or not. No consideration is to be taken of any motives. All

allusions to desire are to be expurgated... What does this leave behind? Bare cognition (if such a thing is conceivable) and the motion of a muscle. 69

Spearman, contrary to these extremists, earnestly strives to maintain a middle course and to explain volition in terms of reality, and with due respect for the dignity of the human person. Though he does not offer a clear-cut distinction between rational and sensory appetition, he does not identify the one with the other. Spearman recognizes a gulf of separation between an act of decision and the movement of impulse. Both contain an orectic element; yet in one there is the power of control, in the other, only a natural response to a preconceived end. Spearman sums up his notion of volition in the following: "Within the sphere of volition there can actually be observed the two alleged events differing in kind, not only from cognition and feeling, but even to some extent from impulse. One is the act of resolving. The other is the carrying of the resolution into action." 70 Spearman here acknowledges the difference of "kind" existing between volition and impulse, though he is apparently unable to clarify further the "extent" of the separation. He is also careful to distinguish

between a will-act and a voluntary movement which indicates a grasp of the true nature of will seldom attained by the modern psychologists. In general, throughout the various discussions on volition, law of control, orexis, and conation, Spearman, more than most of his contemporaries, has attempted to avoid the extreme positions maintained by the associationists and sensists. In his comments and criticisms of materialistic theories, as well as in the exposition of his own doctrine, he has given frequent manifestations of adherence to scholastic principles and acceptance of the Thomistic concept of man.

Spearman is significant especially for his recognition of the need of building up a science of mind on a basis of sound philosophic principles. The factori2illist, whether he admits it or not, is really a faculty psychologist. This is true of every investigator in the field of psychometrics. He is working in the best Aristotelian and Thomistic tradition, since the ground he covers is concerned with the acts and powers, or the performances and abilities, of man.71

Edward Tolman

The purposive behaviorism of Edward Tolman presents a pot pourri of theories, systems, and influences amalgamated into a

doctrine which may be readily recognized as the author's own unique interpretation. Fundamentally, Tolman's works are behavioristic; they are based on the assumption that man is a biological entity only and that human behavior is the sum total of the organism's responses to environment. Tolman, however, has attempted to adopt and fit into the behavioristic pattern viewpoints gleaned from several other sources. He has introduced an objective and mechanical type of purposiveness; has explained learning in terms of gestalt formations; and has at times emphasized the functional character of the stimulus-response reflex.

Properly speaking, Tolman's works deserve no place in the discussion of volitional theories. His approach to psychological problems is not only thoroughly materialistic, but even devoid of any attempt to distinguish, actually, between human and animal behavior. There is no reference to will or volition as such; psychic elements which are subjective in nature are either entirely disregarded or interpreted in terms of pure objectivism. However, since Tolman's theory represents a dynamic form of behaviorism, because of the purposive element he introduces, it may be well to investigate briefly his descriptions of human activities.

Tolman's acceptance of "purpose" and "goals" is based on his experimental observations of animals. Principles deduced
from these animal experiments are readily applied to human behavior, for both man and animal are intrinsically dependent upon their biological structures. Even among animals it is evident that some objects are sought for, while others are not; the same objects may at one time be the aim of possession and at another time may be the cause of repulsion. The reasons for such variable responses are based on purposive objectivism; the causes are themselves rooted in environment and the physiological status of the organism.

The first initiating causes of behavior are environmental stimuli and initiating physiological states. These operate on or through the behavior-determinants. The behavior-determinants are, it appears further, subdivisible into three classes: (a) immediately 'in-lying' objectively defined purposes and cognitions--i.e., the 'immanent determinants'; (b) the purposive and cognitive 'capacities' of the given individual or species, which mediate the specific immanent determinants as a result of the given stimuli, and the given initiating states; (c) 'behavior-adjustments', which, under certain special conditions, are produced by the immanent determinants in place of actual overt behavior and which serve to act back upon such immanent determinants, to remould and 'correct' the latter and thus finally to
produce a new and different overt behavior from that which would otherwise have occurred.72

Much attention is also given to appetites and aversions, instinct and drives. These psychological factors are significant in purposive behavior, for they are the underlying motivations of all actions. Tolman repeatedly reminds us that his theory is not a form of hormic psychology. McDougall’s doctrine is also purposive and built upon the assumption that all human as well as animal activities ultimately are guided and directed by instincts. McDougall’s instinct theory, though it attributes much import to the physiological basis and development of behavior, endeavors to explain purposiveness in terms of mental and psychic phenomena. According to McDougall’s theory, instinct is not merely a form of objective behavior; it is a bodily reaction stimulated by a purpose preconceived by mind. Hormic psychology describes instinct as comprising two equally important elements; the response of the bodily organism and the mental perception of a goal. Contrary to these principles, Tolman’s interpretation eliminates the mental aspect and strictly adheres to a purely objective consideration of purpose. Nature is essentially monistic, and purposiveness in

behavior arises from the same kind of source as does the physiological response. There is no twofold division of body and mind; therefore the source of man's activities cannot be partly "mental" and partly physiological. For Tolman, goals and purposiveness are a part of the response situation, not a mentalistic conception.

...for us, these same facts of purpose and cognition are but an expression of certain very complex activities in organic bodies.\(^73\)... In a word, the fact of purpose, as we conceive it, is an objective fact. It is the fact that behavior is docile relative to objectively determined ends. Our psychology is purposivism; but it is an objective, behavioristic purposivism, not a mentalistic one.\(^74\)

Appetites and aversions are the two general classes of motivations. An appetite is an innate demand to attain physiological "quiescence," while aversion is an innate demand to escape physiological disturbances. All behavior is activated by these two kinds of innate drives. It is interesting to note Tolman's ingenious ability to intersperse, here and there in his own doctrine, psychological morsels obtained from other schools of thought. His explanations of appetites and drives

\(^73\)Ibid., p. 422.
\(^74\)Ibid., p. 423.
include a revised feature of Gestaltism. Besides the innate
demand to possess or repel, contained in appetite and aversion
respectively, there is another element comparable to the cona-
tive effort as accepted by most psychologists. Tolman refers
to conation in terms, whose meaning can be conveyed adequately,
only by a direct quotation. Describing appetites and aversions
in man, the author states the following:

Furthermore he is provided
innately with certain more or
less vague sign-gestalt-readiness
as to how to get thus to or from.
In the case of an appetite, he is
provided innately with some vague
final sign-gestalt-readiness as
to the type of consummatory object
and consummatory response which
will lead to the given quiescence--
and also, it would seem, with some
vague subordinate sign-gestalt-
readinesses as to how to explore
in order to get such consummatory
objects. 75

At other times, Tolman stresses the functional qualities
of behavior. The activities of man, and of animals as well,
form a continual goal-seeking process. Behavior, in other
words, is an entity which is defined functionally as well as
objectively; behavior is the sum total of all our activities
and is the biological organism functioning as a whole. When he

75 Ibid., p. 287.
speaks of behavior, he is speaking of an organism functioning in its capacity of getting to or from goal-objects, and of selecting certain "means-objects-routes" towards the acquisition of these same goal-objects.

The basic principles of Tolman's dynamic behaviorism are closely allied to those of Watson. While the purposive feature of Tolman's theory may apparently seem to be a serious deviation from the Watsonian tradition, actually it is not. Object-goals and purposiveness add no rational or even mental quality to overt behavior. They are merely objective variables inserted for the purpose of explaining the diverse patterns of responses occurring in the individual organism. Volitions and will do not exist in Tolman's theory; voluntary movements are simply included in the category of mechanistic responses, and are prompted by an innate demand towards certain goal-objects. Though Tolman proposes to offer a behaviorism with the intent to explain its purposive nature, he does little else than admit that variabilities in responses occur and deserve explanation. Behavior reactions are not stereotyped. However, his theoretical contribution is but a remodeled edition of the old behavioristic doctrine.

In recent years, the pure reflex-behavior theory, popularized by Watson, has receded to the background; and the trend is definitely in favor of a modified form of mechanism, one
which describes behavior in terms of motivation, purpose, and goals. Psychologists soon found the stereotyped reflex responses inadequate to account for the variability of human reactions. Something more dynamic, more vital was needed to explain the innumerable complexities arising in every day living. Yet the modern materialists were anything but willing to forsake their monistic principles; and with complete non-chalance attempted to describe motivation, purpose, and even will, as physiological properties of a biological organism.

Paul T. Young

The above resumé of Tolman's theory indicates the author's tenacious adherence to the fundamentals of behaviorism. At the same time, he tries to incorporate into his own system prevailing notions concerning purposiveness in psychology. Others have relinquished the emphasis on stimulus-response bonds as units of behavior, and have concentrated on motivation as the unitary force in the psychology of man. A strong advocate of motivational psychology is Paul T. Young.

The author is almost apologetic in his few paragraphs on volition and refers to it as the "so-called 'will' factor." He defines it in terms of sensory conations; "will is a postural
adjustment or set of the subject towards his task." From the outset it is evident that will is looked upon as a "motivating factor" rather than as a directive power itself. Young describes experiments on learning and on specific determination in great detail, and with many elaborations on the conscious purpose of the subjects; yet at no time makes any attempt to explain what is motivated. The organism as a whole reacts in a great variety of modes to a certain stimulus at different times, and under changed conditions; or the organism reacts to one stimulus and not to another--these are the generalizations resulting from Young's investigations. The causes for these inconsistencies are found in the physiological background or perhaps in external objective circumstances. Young is concerned with the biological organism as a whole and is not interested, particularly, in the numerous individual powers with which people are endowed. The focus of Young's study is the objective motive, whatever it may be, which brings about a reaction in the organism. Needs, desires, wants, wishes, appetites, aversions, and all forms of dynamic activities are classed as motivation factors. They become objects rather than processes. For example, the "will to learn" is a powerful

---

motive in the learning process; the subject learns because he has a specific determination motivating him.

The problem of will enters into tasks involving voluntary attention. Again, Young refers to "voluntary" as a type of physical set. "The essential factor in voluntary attention is postural set or adjustment . . . When an activity in which we are interested goes along by itself without this sense of effort we do not ordinarily speak of voluntary attention in connection with it." 77 Even free will is explained as a conative set. "To will an action is to assume a determining set which motivates behavior. The problem of free will centers around the conditions which bring a determining set into existence." 78

Among the very inclusive list of motives, ranging from the "will-factor" to drives and desires, the feeling states are not to be found. Pleasantness and unpleasantness are described as conscious processes in the realm of experience. Young rejects the theory of psychological hedonism as it is usually understood and has adopted what he calls, "factual hedonism." His distinction is made upon empirical facts. Everyday experiences, he says, reveal that pleasantness and unpleasantness do

77 Ibid., p. 214.
78 Ibid., p. 216.
not always determine our conduct; they are only associated with
the pursuit and attainment of a goal and the avoidance of an
undesirable object, respectively. "Pleasantness and unpleas-
antness are thus the manifestations within conscious experience
of dynamic interplay of motivating factors. They are subjective signs of conflict, release, over-stimulation, and other
conditions existing within the physical mind."79

Young's interpretation of mind, and of all the factors
concerned in mental processes, such as motives, goals, drives,
and will, is substantially physiological. First of all, his
basic hypothesis is the identity of mind and brain.

We hold to the theory that the
mind and the brain are one and
the same reality. All the facts
about motivation…fit this
identity hypothesis… Whether
the structure which regulates
behavior and conscious experience
be called a mind or a brain
matters little provided we are
clear about viewpoints. The main
difference between the conceptions
of mind and brain is that the former
is assumed from an individual point
of view, and the latter from an
objective.80 … The assumption
of a single motivating structure
as the basis of all activity re-
moves the difficulties latent in
the dualistic opposition of a real
mind and a real brain.81

79 Ibid., p. 384.
80 Ibid., p. 532.
81 Ibid., p. 37.
Following this first assumption, Young proceeds to explain motivation as a physiological process which stimulates behavior in the organism as a whole. Motivation by means of neural mechanisms releases energy and initiates bodily movements. All motivating factors, therefore, may be defined as conditions which bring about the release of physical energy. Motives may originate within the organism or may be occasioned by environmental causes; the latter kind are called "incentives."

In his attempts to describe the dynamic energies of man, Young has reduced the human individual to a physical, biological structure. Consequently, motivation designates any factor which causes a release of bodily energy. Consistent with the basic pattern of the human person as a biological entity, the "will-factor" refers only to muscular set or a specific determination made effective through the neural organization of the body. Though the doctrine rejects mechanism in favor of motivational dynamism, ultimately both motivation and human dynamics are expounded as forms of physical determinism. Young's summary of motivational psychology provides a worthy testimony of these facts.

Motivational psychology may be defined as the study of all conditions which arouse and regulate the behavior of organisms. The arousal of behavior necessarily implies a release of physical
energy from the tissues. The regulation of behavior includes the control of activity through determinations as well as the restriction of activity by organic structure.  

Kurt Lewin and Gestaltism

As an offspring of the Gestaltqualität of the Austrian School and the phenomenology of Husserl, was born the very influential contemporary school of thought, Gestaltism. The principles and laws of Gestalt psychology are many, and the adherents to this theory are subdivided into groups according to their own particular interpretations and special researches. However, the fundamentals of Gestalt psychology are generally upheld by all these groups within the school. Like functionalism and hormic psychology, Gestaltism was a reactionary movement against structuralism, and from the outset has steadfastly defended the unity of mind and dynamic nature of all human and animal activities. The immediate beginnings of this school can be traced to Wertheimer's experiment on the perception of movement. As a result of his investigations, Wertheimer, together with Köhler and Koffka, concluded that psychological phenomena

82 Ibid.
existed in our experiences which were inexplicable according to the classical principles of Wundt. The famous "phi phenomena", discovered by Wertheimer and his subjects, convinced these men that life is more than a mere collection of elements.

The first principle established by the Gestaltists—that the whole is more than the mere sum of its parts—was a direct attack on elementarism. Adding up bits of associated elements never produces a perception in its true nature. We first perceive objects as wholes, not as a bundle of parts; therefore the perception of the whole is prior to the perception of its parts. Following this first principle, Gestalt psychology rejects any form of connectionism, bonds of association, or elemental units of behavior. Such appendages are superficial, unreal, and contrary to the oneness or gestalt quality of all perceptions. We can never determine the real nature of our mental experience by means of analysis because analysis itself destroys the reality of our experiences. Analysis breaks up the existing unity, and in doing so changes the very essence of the object under study. Our own common everyday experiences confirm these facts. We perceive objects as wholes, not as a mosaic of parts or as clusters of elemental sensations and feelings.

A rejection of assimilated sensations as the basis of experience included an abandonment of the constancy hypothesis,
which maintained that a direct one-to-one correspondence existed between isolated or local stimulations and immediate behavior. Sensations, aroused by their respective points of stimulation, were supposed to become united by bonds of association or fused together to form the perceptions we experience. Gestalt psychology vigorously contested all these assumptions of elementarism and associationism, and built up a psychology which describes all our experiences in terms of "patterns" and "totalities". Its specific intention was to cleanse psychology of all artificiality, and to replace the inadequate and sterile doctrine of structuralism by a theory which interprets experiences as they really exist, not as they seem to be under analytic dissection.

All we intend to do is to replace laws of local correspondence, laws of machine effects, by laws of a much more comprehensive correspondence between the total perceptual field and the total stimulation, and we shall, in the search for these laws, find at least indications of some more specific constancies, though never one of the type expressed by the constancy hypothesis.83

This brief description of Gestalt psychology is only a schema of a very complicated and intricate system of thought.

In our discussion, we are primarily interested in the theory of will as proposed by Gestaltists. As a preface to this particular investigation, it will be well to understand something about the general nature of dynamics according to Gestaltists. These theorists are severely critical of mechanisms of the behavioristic kind. Behaviorism stresses the stimulus-response bond as the unit of activity; reflexes are the ultimate source of all action. But the reflex theory, in describing behavior, emphasizes the importance of isolated movements elicited by isolated stimuli, a direct contradiction to the Gestaltqualität of behavior in reality. Mechanism of this kind is promptly rejected; in order to preserve the "totality" of action as well as the "wholeness" of perception, the Gestaltists established an analogous relationship between the laws of behavior and the laws of physics. However, the Gestaltists do not identify psychical and physical forces, but emphasize the close analogy.

...the treatment of causal dynamic problems compels psychology to employ the fundamental concepts of dynamics, not, as frequently in the past, promiscuously, but in the development of a differentiated concept-formation in dynamic fields. Physical analogies may often be drawn without damage to clarification. On the other hand, it is always necessary carefully to avoid certain very easy errors, for example, in the adequate comprehension of the
psychical field forces; and it must always be kept in mind that we have to do with forces in a psychical field and not in the physical environment. 84

Mental laws were prescribed to provide an explanation for the simultaneous and orderly reactions of the organism as a whole to the many and various kinds of stimuli. Many patterns of stimulations occur in rapid and often haphazard sequence, but behavior itself is purposive, orderly, and meaningful. Because the organism reacts to these stimuli as a whole and not in isolated sections, the order and meaning of actions are preserved. What is it that maintains this order and directs our performances toward goals and purposes? The Gestaltists say that just as the solar system and the various other systems in nature are controlled and piloted by the interactions of physical forces, so are the activities of the human organism governed by psychical forces. Psychical forces are dynamic and are the source of all human power; by means of their own mutual interrelationships they direct, organize, and control all the activities we perform.

Dynamical interaction, undisturbed by accidental impacts from without, leads to orderly distribution,

though there are no special pre-established arrangements.

And what is the explanation of this general tendency in undisturbed dynamics? It is simple enough. In all these systems we have one resulting force at each point at each instant of time. All the resultant forces together form one texture of stresses. From the principles of physics one can deduce, therefore, that, for the system as a whole, the immediate effect of all those forces will have one definite direction.

In the field of dynamics, then, the primary assumption of Gestalt psychology is: that psychical forces are the point of origin for all activities of the organism. Human processes are directed and distributed by the dynamic interactions of these natural executive forces.

The Gestaltists have not totally discarded the term will, and have made some attempts to distinguish between voluntary and non-voluntary actions. Koffka, Köhler, and others have based their discussions of will on the earlier investigations of Kurt Lewin. Introducing the problem of will in his chapter on Action, Koffka says, "The discussion which is to follow will again be based very largely on the work of Lewin, whose lucid and acute analysis of the problem has probably been the strongest

force in re-establishing problems of volition as primary problems of psychology. 

Strictly speaking, the Gestaltists make no clear-cut segregation of actions into voluntary and non-voluntary types. Actions are complex and may contain both positive and negative valences, as well as external and internal influences. An intense resolve to perform an action may include an actual dislike or unwillingness to fulfill the determination. Valences often control the situation, so that it is difficult to say whether the action is voluntary or not.

An already existing state of tension, which may go back to a purpose, a need, or a half-finished activity, is interested in a certain object or event, which is experienced as an attraction (or repulsion), in such a way that this particular tense system now obtains control of the motorium. We shall say of such objects that they possess a 'valence'.

Valences of this sort operate at the same time (as do certain other experiences) as field forces in the sense that they steer the psychical processes, above all the motorium. 

Lewin offers a classification of activities consistent with the determinism of Gestaltism. Instead of voluntary and

---

involuntary activities, he refers to "field-actions" and "controlled actions". Field actions refer to those actions directed by external forces situated somewhere outside the subjective ego. Controlled actions refer to actions ruled by ego-forces. This division does not imply complete mutual exclusion of either kind of forces; for we may say that environmental forces predominate in field actions, and ego-forces, in controlled actions. In the final analysis, the distinction is due, not so much to the type of forces concerned, but, rather, to the difference in organization of the forces involved, whichever ones they may be. "A continuous control of the process by the forces of the outer psychological environment occurs when the activities are not (or are in only slight degree) autochthonous, or when the forces inherent in the course of the process as such are small relative to the field forces."\(^8^8\)

Lewin does not describe will as a single power or even as an individual "force", but regards volition as a type of deterministic organization of many forces. The human organism contributes little in the way of direction to the total process; the individual himself is "steered" either one way or the

other, depending on many circumstances. The forces, both of the
inner and outer environment, the process itself, the intention,
the positive and negative valences existing in the field of
forces,—all these, depending upon the particular pattern of
their organization, determine whether an action be controlled,
or whether it be impulsive. The steering process is governed
immediately by the perceptual field, but remotely by the total
organization of all forces and processes concerned.

...the action process...proceeds
typically in successive action
steps which themselves form
largely autochthonous wholes...
Whether the control of the proc­
ess by the field of force occurs
in this latter manner or in the
sense of a continuous steering
depends, on the one hand, upon
the integral firmness and the
forces of the action process
itself and, on the other hand,
upon the strength of the forces
in the field. Hence changes in
either of these circumstances
lead to essential changes in the
course of the process. At all
events, the steering processes
are of fundamental significance
for the whole field of impulsive
and controlled behavior. 

Lewin's theory of will, which is practically that of
Gestalt psychology, is essentially deterministic and

89 Ibid., p. 49.
mechanistic. Whether behavior is controlled by stimulus-response connections or by psychical forces, in either case, it is determined and not free. Gestalt psychology has not rejected mechanism but has substituted one kind for another. Will is not a supreme, directive power, but simply one of the many dynamic ego-forces of which the total organism is composed. Man is completely without a substantiability of his own, for every act changes the whole individual and every act is controlled by psychic energies. Not only is he at the mercy of cosmic forces, but he is even wholly subjected to the psychical forces within his own organism. In brief, actions, volitional or impulsive, are the physical or cortical patterns of dynamic energy arising from a biological whole which is man.

Johannes Lindworsky

Among the modern scholastic psychologists, Lindworsky is the most eminent authority on will. He has made an intensive study of volitional processes, and has been a strong opponent to those who define will as muscular tension or conative set. His investigations and written works reaffirm all the essential fundamentals set forth in scholastic philosophy. His findings are but further substantiations of the true rational character of will. He has made invaluable contributions to the study of
will in his detailed psychological developments of principles already established by metaphysics and the philosophy of man.

Lindworsky points out that volition, unlike cognition, is not a primary conscious power. Perceptions and sensations are a part of the cognitive process and nothing else precedes them in our conscious life. In the case of will, there must always be knowledge beforehand. The most important of all the cognitive contents which precede will are motives. For Lindworsky, motives form an integral part of the volitional process and are defined as follows: "the motive of the volitional act is everything which is represented to the mind as a value realizable through the voluntary act. We understand by value anything that is advantageous for the individual concerned." Motives may be classified as higher and lower, and inner and outer. Lower motives find their only value in the pleasurable feelings which they excite. Higher motives refer to values derived through cognizance of relations. Inner motives are concerned with the goal in question and its personal value, while outer motives pertain to a more extensive realm of values. Obviously, the most essential requisite for all motives is appearance in consciousness. While other organic processes

progress effectively without the presence of consciousness, motives and values must be cognized by the mind in order to exist. They are subjective contents, not objective ones. Because of their subjective nature, the efficacy of motives may vary from time to time. Imagination may enhance certain motives beyond their actual value, or at times we may be more cognizant of hidden values than at other times. In training the will, greatest emphasis should be given to motives. The older notions of strong will-power were founded on the belief that continual exercise increases strength—as if will were a muscular power. Lindworsky's thesis maintains that strength of will is achieved by habituating it to act on proper motives.

The author's experiments on the resolution of the disagreeable speak decisively against the existence and significance of intensive acts of will. Our will appears to be comparable not to a forceful stroke of a hammer, but, rather, to a switching, or a closing of a contact, for which no particular force is necessary. The total strength of will might depend on the placing in readiness of valuable goals, and in a skilled diversion of the attention. In this way, many facts may be explained satisfactorily; for example, the circumstances that the strength of will is not reserved for any age or sex alone and that men who in one domain have great strength of will may lack it completely in
others. It is not the existence, or the lack of strength of will, but the readiness or lack of motives, that furnishes the key to the understanding of such contradictory behavior.\footnote{Ibid., p. 315.}

The concept of value is, in turn, dependent upon the entire hierarchy of values and the complete philosophy of life which an individual possesses. Motives and values are relative objectives. However, in will training, it is of utmost importance that our motives be \textit{specific}. Just as images are necessary to bodily action, so are specific motives necessary to right will-action. Above all, we must distinguish between subjectively experienced values and merely speculative ones as effective motives. Ideals are simply concrete, complex motive-values. A sound permanent set of values embodied in concrete ideals is the only guarantee for stability and security in one's psychological development.

The internal act of will, though prompted by motives, is \textit{per se} a rational, appetitive movement, distinct from perception, thought, or feeling. Acts of will form a distinct category of their own in the intellectual life of man. But the volitional process is a complex phenomenon and includes a diversity of other elements besides actual willing. There are three stages in every complete process of volition: \textit{first,}
the acquisition of motives preceding the resolution—we might call it the accumulation of will power; second, the resolution or rather the choice; and third, the execution of resolution."^92

From experimentations on will, Ach had concluded that a sort of psychic force, acting subconsciously, existed in the volitional process. A "determining tendency" leads to the fulfillment of resolution. Lindworsky refuted Ach's law of special determination, and pointed out that voluntary attention explained the performances of tasks unadverted to after the original resolution. To will or resolve something specifically, we must first intellectually perceive the task before us, and in doing so we attend to the object of our will. The image of the task is strengthened by the attention thus given to it, and even in the absence of the initial resolution the task may be performed effectively. Lindworsky says that the resulting performance is not the outcome of a specific determining force, but of voluntary attention, acting under the influence of previous habit.

Lindworsky carefully distinguishes voluntary actions from will acts and also from reflex and instinctive movements. All these movements, however, are at times associated with the

volitional processes. Inward willing requires various bodily activities for its objective fulfillment. In this discussion arises the problem of images. Some authors, as we have seen, designate kinaesthetic images as a prerequisite for voluntary movements. Lindworsky states that experimental self-observation reveals the scarcity of these images. However, at some time or other, previous to the movement, there must have been an image of the movement. The image is a necessary step to the final production of an action. "It has been shown in every case that no direct path leads from the image of the goal to its realization. Otherwise, each normal person should be able to move either of his ears." Furthermore, in customary voluntary movements, a visual image of the goal pursued is more significant than kinaesthetic images, which might even prove to be disturbing factors in the actual performance. Lindworsky affirms the advantages of kinaesthetic images previous to voluntary actions, though he apparently does not assert that they are immediate prerequisites; it is possible that they are frequently present only in the remote background. Neither visual nor kinaesthetic images should be regarded as superfluous appendages, but, rather, as factors contributing to the total process of willing an act and executing it. "According

93Experimental Psychology, p. 320.
to our view, the kinaesthetic images assist in making the finer corrections of the occasionally occurring movements, while the visual images assist in making the coarser corrections.  

We may now briefly summarize some of the outstanding features of Lindworsky's theory of will. (1) While other authors have emphasized exercise by repeated performances as the important factor in will training, Lindworsky stresses motives and value as the main source of will power. However, Lindworsky does not overlook the value of repetition, and recommends its use whenever it is found to be efficacious. Education of will should train it to act on proper motives. He makes careful distinctions between subjectively experienced values and those which are merely speculative ones. Furthermore, the more specific motives are the more effective ones. (2) Objective experimentations cannot prove the existence of will or freedom of the will, though it follows indirectly from them, or at least negatively. (3) While the will-act is per se a rational appetitive act, the volitional process in human beings is complete only when will reveals itself in outward behavior; "...valid observations indicate that there is no isolated willing, that there is no pure act of will, and

94 Ibid., p. 321.
that just as the mind needs the body, so the volitional act
needs a mode of behavior in which it can reveal itself. 95

We have attempted to review some of the most influential
theories of will and to present a cross section exemplifying
the many diversities and individualistic tendencies apparent in
so many of the outstanding ones. However, the picture is still
incomplete, for experimentalists have also contributed theories
based on objective data and introspective reports. It is out-
side the scope of experiments to determine anything about the
nature of will directly, but by these indirect methods it is
possible to know more about effects of volition. In the next
chapter we will give a resume of the classic experiments on
will.

95 Ibid.
CHAPTER IV

EXPERIMENTS ON WILL

In recent years experimentations have flourished in psychological fields. Our knowledge of perception, imagery, memory, and thought has made great advances, and much of this progress is the result of the many ingenious experiments carried through by careful investigators. Will experiments are few in number and the results inconclusive. However, both the methods used and the achievements attained are well worth our consideration.

Narziss Ach

Preeminent among the early experimenters on will is Narziss Ach. There is scarcely a chapter on volition among our modern psychology books which does not include a discussion or at least references to Ach's remarkable work. Ach's new mode of procedure, rather than the conclusions he drew, established a precedent in experimental psychology of the higher thought processes.
Ach realized that the will-act and the external reactions are two separable phenomena. In order to gain introspections on the act of willing as well as on the ensuing reaction, he fractionated the observations into three periods; a fore period, the main period, and the after period. In the fore period, the subject reported his experiences between the preliminary instructions and the presentation; in the main period he described his actual reactions to the stimulus; in the after period he introspected for the time subsequent to the reactionary period. Ach tried to create a situation which would be certain to include an observation of the will act, for volition occurs when the subject accepts the task and not only when he performs it.

In Ach's experiments, the subjects were required to memorize a group of paired nonsense syllables, so that when one member of the pair was presented, they would readily respond with the other member. After they had completed this task, conflicting conditions were established. Instead of responding with the other syllable of the pair memorized, they were now required to give a syllable that rhymed with the proposed one. In order to fulfill the last requirements, the subjects had to overcome a preestablished habit; and to accomplish this feat will-acts were necessary. Through introspective reports from the subjects about their experience during the process, Ach
obtained descriptions of volitional action under controlled conditions. The presence of conflicting tendencies evoked in the subject a strong resolution to overcome the established "determining tendency". Ach contends he could measure the strength of will manifested in these subjects by measuring the force of the determining tendency; the measure was termed the " associative equivalent". In other words, the stronger the conflicting tendency, the greater the strength of will. If the determining tendency proved to be stronger than the reproductive tendency, the subject was able to overcome the association already established. ¹

Ach's analyses of the introspective reports of the subjects led him to some very significant conclusions. These

reports made it clear to Ach that the determining tendency included four distinct elements: first, a sensory element manifested by physical feelings of tension and effort; secondly, an intellectual element, ideas and thoughts concerning the purpose in view; thirdly, the consciousness of effort exerted towards acquisition of the goal; and finally, the actual or essential element which is an awareness of the "I will". The last mentioned element constituted the most distinguishing attribute of the will-act. The subjects were aware that the action in which they were engaged proceeded from the self. They were experiencing, here and now, the self in action, a phenomenon unrealizable in any other kind of dynamic activity. 2

As Külpe, Marbe, Orth, and others of the Würzburgers had arrived at the presence of irreducible elements in ideas and

\[\text{2Nur so viel ist klar, dass hier die "Ichseite" des psychischen Geschehens in ganz anderer Weise hervortritt als bei sonstigen Erlebnissen, sowie dass ferner in dem Momente, wo der Willensakt in seiner energetischen Form gegenwärtig ist, eine eindeutig bestimmte Änderung des Verhaltens des "Ich" erlebt wird. Es ist mir vorerst versagt, noch näher auf eine Charakteristik dieses Teiles des Erlebnisses einzugehen. Eine Klärung ist insbesondere dann möglich, wenn die innerste Seite des seelischen Geschehens, welche wir eben als das "Ich" bezeichnen, der Untersuchung näher zugänglich sein wird. Und das ist dann der Fall, wenn der Willensakt im Hinblick auf die Art und Weise seines Zustandekommens betrachtet wird. Ibid., p. 241.}\]
judgments, so Ach believed that non-sensory contents existed in volitions. The Würzburgers had made the first serious break with traditional sensism; the strength of their opposition was increased by their unanimity of opinion reached through various kinds of experiments. During the experiments, Ach observed that the subjects exerted great effort, and often their attempts were accompanied by tense bodily posture or characteristic gestures. These physical concomitants were definitely classed as external signs of the internal act of will. Ach did not consider these conative movements as part of the will-act itself, but only as outward manifestations of the internal resolve.

Only a few of the subjects were successful in overcoming the strong reproductive tendency developed in the first part of the experiment.

At this point it is well to reconsider Ach's "associate equivalent". There is no real evidence that the "determining tendency" is the will-act only. In his attempts to measure will by the experimental procedure described, Ach was actually only comparing the strength of two reproductive tendencies; and he did not discuss the further problem of freedom of choice involved in the acceptance of the task. For, the tendency to comply with the directions, whatever the subjects motive for acceptance may have been, by giving a rhyme instead of the learned syllable is also, in a sense, a reproductive tendency.
Personal experiences of the subject may have greatly influenced their ability to reproduce rhyming syllables. Ach determined his "measure" by first finding out how many repetitions of nonsense syllables were needed for the learning process, without at the same time hampering the efficacy of the resolutions. He found that 120 repetitions formed so strong an association that it overcame the subject's resolution to respond according to the directions. Strength of will, then, was measured by the number of repetitions needed to form an effective "associative equivalent". To attempt the measurement of will power on a numerical basis is a precarious procedure to say the least. This method would never permit of generalizations in other types of will action.

In his work on the will, Ach, like others, recognized the existence of mental states which were unpicturable, incapable of being represented by any sensible images.\(^3\) Ach's analysis of will-acts marks a great contrast to the interpretation of the sensists. Since the time of Locke and Hume, will popularly

had been described as a complex process characterized chiefly by the feeling states or by emotional elements. Contrary to these views, Ach claimed that the will-act was something over and above the physical feeling of effort. His experiments gave ample evidence that the acceptance of the task and actual "I will" was an intellectual process, and like thought itself contained neither kinaesthetic images nor physical tension.  

While it is not possible to experiment on the will directly, Ach's works show that experimentations have contributed invaluable descriptive data on volitional activities. His experiments offered objective proofs for the fact that the internal act of will, at least as a tendency, cannot be identified with cognitive processes, whether sensory or

---

intellectual, nor with any of the feeling or emotional states. Willing is a dynamic process distinct from all other mental activities. 5

Michotte and Prüm

Michotte and Prüm of the Louvain School undertook to investigate another type of will-act, namely choice. Methods were planned so that records of the process of choice could be secured under experimental conditions. The subjects were asked to choose between two mathematical operations at each trial. Two numbers were presented by means of a tachistoscope: if the card contained a four-digit number, the subject had to choose between addition and subtraction; if the number presented was smaller, he was to choose between multiplication and division. As soon as the decision was made, the subject pressed a key. The subjects were asked to report their introspections during

the time preceding actual choice, as well as their experience of the final selection itself. The directions requested that the choices be made for a serious reason and that they be made as quickly as possible. From the data obtained, Michotte and Prum made a complete and careful study of the factors in volitional consciousness.

Upon the presentation of the stimulus card, it was observed that the subjects immediately began to evaluate the two alternatives according to the motives which they had in mind. During this time one object was found to be more worthwhile than the other. This period was characterized by consciousness of motives and values. After the period of motivation, an "intermediary" period ensued wherein the subjects realized a consciousness of doubt and hesitation; and they found themselves engaged in reasoning, comparing, evaluating, etc. Sensory contents at this point were completely lacking. During this time, preliminary to actual selection, the subjects often experienced muscular tension, especially in the finger which was preparing to press the reaction key. The whole tenor of this transition period was one of suspension, and for this
reason it is natural that physical accompaniments would be present.6

In the final state which included choice, an interesting differentiation was noticed by the experimenters. Two factors were present, decision and consent; and these were found to be distinguished by definite structural differences. Decision followed immediately after the adoption of motives, or after the two alternatives were clearly within consciousness. In this case, the subject designated the chosen operation in one of two ways; either in a "lively" fashion or in a "cold" fashion. Decision was "lively" if it followed after considerable muscular tension; it was "cold" if no muscular tension

---

6"Le stade intermédiaire comprend tout d'abord un état subjectif assez caractéristique du sujet. Cet état contient comme facteurs constitutifs:
1. Une conscience de doute, d'hésitation, d'oscillation.
2. Une conscience d'attente, de suspens.
3. Une tension musculaire générale, localisée plus spécialement dans le doigt qui doit réagir et dans la poitrine. La respiration est superficielle accélérée, et présente des arrêts."

preceded it. Consent followed only when the desired alternative was present alone in the focus of consciousness. While decision requires two alternatives, consent which follows decision is characterized by acceptance; therefore it needs only consciousness of the desired alternative. Consent is also closely related to motivation. One more important distinction was observed, namely the difference between voluntary and "non-voluntary" choice. Some subjects did not possess any

7 Parmi les actes volontaires, la distinction la plus caractéristique est celle qui sépare la décision du consentement, ou de l'adhésion. Ces phénomènes peuvent, de plus, présenter divers aspects. La décision peut être 'froide', 'vive', ou 'active', qui différences qui paraissent très accusées chez les sujets non-exercés, mais qui, avec un peu d'habitude de l'introspection, semblent de peu d'importance au point de vue du caractère volontaire... La décision est, en général, 'vive' dans le sens que vous venons de décrire, quand elle est précédée par un état de forte tension, et elle s'accompagne alors normalement de contractions dans diverses parties du corps... La tension ne s'étant pas relâchée immédiatement, la décision est froide." Ibid., pp. 181-184.

8 Les deux formes d'apparition du choix volontaire, décision et consentement, répondent à des conditions bien définies. Le choix est considéré toujours comme véritable décision, quand il apparaît immédiatement après les motifs, ou immédiatement après la pause pendant laquelle se développent l'attente et le doute, ou encore quand les mots désignant les deux opérations sont prononcés intérieurement par le sujet immédiatement avant le choix. Quand, par contre, seule l'alternative qui va être choisie se présente à la conscience, sous forme interrogative, ou bien accompagnée de la notion 'c'est ceci qu'il faut choisir,' ou enfin quand cette notion apparaît seule, le sujet considère toujours le choix comme ayant la forme du consentement. Il résulte de là, que le choix revêt cette dernière forme quand au moment qui le précède immédiatement, l'alternative la plus favorisée a été spécialement consciente, ou que sa valeur a été nettement présente. Le caractère du choix semble donc en rapport intime avec la motivation." Ibid., pp. 190-191.
consciousness of action, and consequently their actions or choices were automatic and not voluntary. Michotte and Prüm established "consciousness of action" as a fundamental requisite for volitional activities. 9

Michotte and Prüm found that volitional activity was characterized by an irreducible element—consciousness of self cannot be analyzed into sensations, feelings, or images. This awareness of the self in action is a phenomenon, distinct in itself and independent of sensory experiences. While other factors of volition may vary from time to time, the consciousness of action constitutes the essential nucleus of will. Consciousness of activity is often accompanied by muscular tension and physiological processes, but it is in no way identifiable with these concomitants. The presence or absence of physiological accompaniments does not affect the essential nature of volition. 10 The experiments repeatedly attempt to substantiate

9 "D'autre part, il existe des processus qui paraissent être tout à fait semblables à nos décisions volontaires et qui cependant ne sont pas considérés comme tels par le sujet; ce sont les décisions automatiques. Le seul facteur qui dans ces cas, est toujours absent, est la conscience de l'action." Ibid., p. 195.

10 "Ce facteur que nous nommerons afin d'éviter toute équivoque, 'conscience de l'action', n'est pas un contenu distinct, placé à côté des autres; absolument différent du sentiment 'd'activité musculaire', il se manifeste comme une simple modalité qui affecte certains phénomènes, comme un caractère qui ne subsiste pas en lui-même comme contenu de conscience, mais qui nécessite un substrat qu'il qualifie. Ce qu'il y a de caractéristique dans l'intervention de ce facteur, c'est qu'il porte directement le caractère de l'action, et ne peut s'exprimer que par l'infini; c'est la conscience de 'faire', 'd'agir', de 'désigner', de 'se tourner vers', de 'dire', de 'laisser aller', etc." Ibid., pp. 193-194.
this principle by reference to automatic actions which are so obviously devoid of consciousness. What may be said of conscious, dynamic sensory processes? Michotte and Prüm do not consider these activities to any great extent.

Though consciousness of goals and purpose is necessary even for instinctive activities, something more is required for rationally directed activities, namely awareness of the self-in-action. Animals are aware of the objects they pursue, but give no evidence of self-consciousness in the process. Michotte and Prüm are not too clear on this point. They say their experiments confirm the fact that choice contains immaterial attributes, but they claim that "consciously of self" is also present in activities other than rational volitions. Their emphasis on physiological accompaniments as being distinct from volition is admirable; but they stress the sensory and dynamic component of will-acts, and apparently see in these a kind of awareness of self. The distinctive feature of volition, namely awareness of self-in-action, is not brought out clearly enough
in the interpretations of their experiment; although they sometimes seem to imply a distinctive feature. 11

The analyses made by Michotte and Prüm are in close agreement with those of Ach. Both experiments, investigating two different aspects of will activity, have arrived ultimately at the same general conclusions. The most important among these is the recognition of an irreducible element or rational quality in the mental processes of volition. The works of Michotte and Prüm, like those of Ach, have demonstrated in an

11 "Quant à la conscience de l'action elle-même il ne semble pas qu'elle soit un attribut exclusif de ce que nous appelons vulgairement phénomènes volontaires, en ce sens que sa présence conditionnerait toujours le caractère volontaire des phénomènes qu'elle affecte. Si, en effet, cette conscience de l'action se définit adéquatement au point de vue descriptif, en disant que les phénomènes qui la portent ne peuvent s'exprimer que par l'infinitif, il est évident que certains faits de la vie psychique ont ce caractère, sans toutefois être à proprement parler des phénomènes 'volontaires'; telles la conscience de 'tendre', de 'désirer', 'd'avoir envie de'. Ces divers phénomènes portent sans aucun doute possible, le même caractère d'action que nos 'décisions' et nos 'consentements'; de même que ceux-là, ils ne peuvent s'exprimer que par l'infinitif, et mènent directement à l'affirmation de l'intervention du 'moi'. La même conscience d'action peut donc affecter divers 'noyaux', divers contenus de conscience, toutes les combinaisons de la conscience de l'action ne constituent pas des phénomènes auxquels on donne spontanément le nom de volontaires, mais, au point de vue descriptif, elles font toutes partie d'une même classe de phénomènes, que nous opposons, comme 'états dynamiques de conscience' aux 'états statiques', c'est-à-dire à c'est états de conscience qui ne comprennent pas la caractéristique de l'action, soit sous forme active, soit sous forme passive, tels par exemple les sentiments du groupe plaisir-déplaisir." Ibid., pp. 195-196.
objective, scientific manner, the immateriality of volitional processes. Common to both experiments is the strong evidence of self-awareness, of the "Ego-in-action". In all the introspections, the experimenters noted that the predominant characteristic was the conscious intervention of self, operating in the capacity of its dynamic, appetitive nature.  

Boyd Barrett

Boyd Barrett, another experimentalist of the Louvain School, made investigations very similar to those of Michotte and Prün. His prime purpose was to study motives and motivation. In order to do so it was necessary to set up laboratory conditions through which records of numerous choices could be obtained. The experimenter was then able to make an intensive study of the motives, circumstances, and phenomena of the choices made.

Five psychologists were used as subjects; the experimenter proposed twenty-eight different choices. The choices were presented in a precise order and under identical conditions. For

12 "Il y a coïncidence, tout d'abord, au sujet de la présence de la 'conscience de l'action' et de son importance au point de vue du caractère volontaire. Le 'facteur actuel' de Ach est en effet, sans aucun doute, ce que nous avons appelé 'conscience de l'action'; c'est une activité vécue. Ibid., p. 310-311."
each choice, the subjects were required to report their introspections. The time duration of each choice was recorded by the experimenter. The materials consisted of eight different liquids which were carefully selected so as to present a series of tastes, graduated according to their degree of agreeableness. Some were highly obnoxious, some were indifferent, and some were very pleasant. All the liquids were colorless and could be differentiated only by their tastes. Nonsense syllables were used to designate each liquid. The experiment included three divisions. In the first part, the subjects learned the associations between the tastes and their respective names. Secondly, the strength of the associations was measured by testing the subjects' ability to recognize the liquid by the stimulus card. Thirdly, the subjects were asked to make choices from the objects presented. After the subjects had thoroughly learned the associations between the nonsense syllables and the liquids, the following directions were given to them: "Two words will appear corresponding to the substance in the two glasses. You are to choose between these substances and to drink at once the liquid which you have chosen."13 The act of choice which followed these instructions contained two

periods: (1) the time between the appearance of the stimulus card and the reaction; (2) the time between the reactions and the actual fulfillment of the choice. The first period was measured by the Hipp chronoscope, and the second, by the Vernier chronoscope.

According to Barrett, the most important factor in the whole experiment was motivation. Evaluation of motives engrossed the attention of the subjects more than any other activity. The whole process of selection centered around the balancing of values. Various types of motives induced the subjects to choose one card rather than another. Sometimes the motives were subjective, and the subject based his choice on some whim or feeling rather than the quality of the differences. Most of the motives, however, were objective ones of an intrinsic kind. These were based on the "hedonic" quality of the substance indicated. Sometimes the subjects resorted to less serious motives and simply chose the nearest glass or the most familiar one.

Introspections revealed that motives themselves were influenced by circumstances, and fluctuated even during the act of choice. Conflicts arose and caused hesitations until one motive succeeded in predominating over the other. Barrett calls this success of domination "The Critical Point of Motives."
It is not sufficient that one motive should predominate over another, in order that the choice may be made in its favor. It must predominate by a certain surplusage. It does not suffice that it should be stronger than the other, in order that it may win. It must, itself, first reach a certain degree of strength or force—it must reach what we shall call its Critical Point.

By the Critical Point of Motives we mean that point or degree of strength, which, being reached by the motive, the choice results automatically. 14

Many different conditions increased the strength of a motive until the Critical Point was finally reached. A motive was strengthened merely by being in the focus of attention for a long time. Or perhaps a weak motive became effective because there was no other to oppose it. According to Barrett, "Motive-Strengthening is indeliberate, and even an unconscious process. It is none the less real." 15 Choices of the same kind tend to follow the same course, and after many of them have been made, a sort of "mental furrow" is established. Barrett called these volitional tendencies "motivation-tracts."

Choices, when of the same kind, normally run along fixed lines. The general structure of the choice act, and the psychical

14 Ibid., p. 83.
15 Ibid., p. 86.
contents remain the same, save for the inevitable evolution and shortening in point of time and content. The motives which recur are usually the same, though in a gradually modified form—they evolve. These motives and the whole choice act, so to speak, pass along beaten tracks. We speak figuratively, to make the matter clearer, not to tinge it with a materialism or a determiner for which we see no shred of evidence.\textsuperscript{16}

One of the chief purposes of Barrett's experiments was to find out the influence of hedonism on motivation. There was ample evidence that the influence was significant, and examples of hedonic attractions and repulsions were abundant. "We found that a correlation existed between the quickness of reaction and the hedonic value, or motive-force of the alternative chosen."\textsuperscript{17} It is interesting to note that pleasantness made for rapid choices, while the slowest choices were those whose objects were unpleasant substances. But over and above choices influenced by "hedonism", there were always present non-hedonic motives. Even in an experiment which involved no ethical principles, it was evident that the pleasure-pain principle was not always the determiner of choice.

\textsuperscript{16}Ibid., pp. 119-120.
\textsuperscript{17}Ibid., p. 95.
Barrett's general conclusions correspond closely to those of Lindworsky's. Both psychologists emphasize the tremendous influence of motives. "The whole capital of the will lies in the motives. But these are thought complexes by which we comprehend values." 18 Barrett, however, claims that motive-strengthening is indeliberate and unconscious. Lindworsky, on the other hand, stresses the fact that the first inculcation of motives becomes the more effective precisely as these motives come into the focus of attention; though, of course, later on certain choices may become more or less habitual processes. For Lindworsky, the building up process is not an unconscious procedure, but rather an intelligent, directed course of action. While Barrett believes that motive-strengthening is acquired by repetitions which, in turn, form a "beaten path", Lindworsky ascertains that all the strength of motives lies in the value attached to them.

No matter how well furrowed the course of choices may be, once the object-value is changed, minimized, or lost, will-action is in some manner or other changed or redirected. Permanency does not result from repetition, but, rather, from goals which are intellectually grounded. Life experiences seem to bear witness to the fact that "motivation-tracts" are not

18 The Training of the Will, p. 159.
the result of routine repetitions. They are dependent upon the permanency of the goals toward which they lead.

Robert S. Woodworth

Though the investigations of Woodworth cannot be considered as outstanding experiments in will psychology, they have earned wide acclaim because of the evidence which they provide against the widely accepted theory of ideomotor will action. First of all, Woodworth was concerned chiefly with dynamics as a whole, and not specifically with volitional activities. The importance of his works on voluntary movements is derived not so much from the nature and results of the experiments themselves, but more from the fact that they are the works of Woodworth. In the field of contemporary psychology, Woodworth is found among the top ranks of experimentalists. The accuracy and precision of his methods together with the extensive range of his researches has made him an outstanding authority in experimental psychology. In perusing a résumé such as ours, wherein attempts have been made to recount the works of notable psychologists, the natural tendency for a critical reader would be to wonder what Woodworth's opinions on this particular issue might be. The renown achieved by Woodworth is due not only to his intensive researches, but is also the result of his
endeavors to follow a middle course, avoiding at all times the position of an extremist. Accordingly, Woodworth is cautious in his acceptance of new interpretations, and has tried to establish his own system of psychology on a sound factual basis.

So if you ask me which school to choose for your own, I should be inclined to advise you to stay in the middle of the road. We must remember that the middle-of-the-road group are not simply the left-overs or those who cannot make up their minds. Sometimes, with a slight change in the figure of speech, we middle-of-the-roaders are said to be sitting on the fence, and to have in bad individual cases, an inveterate tendency to sit on the fence. Well, in support of this position it may be said that it is cooler up here and one has a better view of all that is going on. But I like the middle-of-the-road figure better, because it brings out the continuity of this group.19

For Woodworth, the whole problem of dynamics lies in the relations between cause and effect. Psychology, in general, is the study of reactions to stimuli. This concept of psychology is not to be confused with the narrow interpretation of behaviorists who base all human activities on stimulus-response connections. Woodworth simply means to imply that all behavior

is related to dynamics, because all activity proceeds from some energizing source. The stimulus alone does not constitute the entire cause of action, for the individual himself contributes much. The very individuality of the person concerned influences the action which results. Watson, Thorndike, Hunter, and others have attempted to trace behavior to S-R bonds which are described as isolated units or events. Woodworth, on the other hand, rightly insists that there is no such thing as a single reaction within a unified organism. The individual, as a whole, is always in some way affected whenever a part is involved. The stimulus-response units are in themselves subject to change as well as whole patterns of activities. It is not possible to describe any one kind of activity as rigidly stereotyped. Human behavior, especially, is characterized by variability in all responses, and complexities arise because of goals and purposes which are so essential to conscious life.

Woodworth performed a series of simple experiments for the purpose of ascertaining the cause of voluntary movement. Two separate sets of experiments were performed; "one on practice in gaining voluntary control of an unfamiliar movement, and one on the execution of a familiar movement."²⁰ The subjects were

asked to perform certain movements and to note particularly what imagery occurred. The subjects were requested to make some of the movements hesitatingly, so as to give ample time for the appearance of imagery. Other movements were made promptly in order to afford opportunities for comparisons. The instructions required three types of movements: first, movements which were confined to the person himself, such as opening the mouth, wagging the jaw, winking, opening closed eyes, flexing or separating the fingers, and flexing the foot; secondly, movements were made involving the use of an instrument—scissors, forceps, or the dynamometer; thirdly, choice of movements was permitted, such as touching any part of the body, or any object in the foreground, flexing or extending the fingers, responding to a sound by a movement of either the hand or the foot. Thirteen subjects were used, and the interpretations made were based almost entirely on the introspections of the subjects.

My observations are not adapted to statistical treatment. The study does not purport to be a census, but a rough survey of the sort of facts that occur. The different subjects did not make equal numbers of observations, nor was care taken to have the
movements chosen a fair sample, statistically, of the voluntary motor activity of daily life.21

From his analysis of these introspections, Woodworth formed his theory of "conceptual control". The introspections of the subjects showed that, in a great number of cases, no imagery of any kind appeared in consciousness. Furthermore, the subjects frequently experienced movement without any previous kinaesthetic image of it. This observation led to a conclusion directly opposed to the main tenet of James's ideomotor theory of will, which emphasized the necessity of kinaesthetic imagery acting as cues for voluntary movements.

As might be expected, the subjects differed greatly in the sort and amount of imagery which they experienced. Some had motor images in advance of most of the movements tried; others had none. Some commonly had visual images, some never. Some had auditory images in preparation for speaking a word, some motor, some visual in addition to motor. Touch, pain, temperature, and semicircular-canal imagery cropped out occasionally. Verbal imagery, naming the act to be performed or the object to be moved or touched, was not infrequent. Some subjects did not anticipate movements in imagery of any sort but attended to sen-

21 Ibid., p. 36-37.
sations of the initial position and of the beginning of the movements.\textsuperscript{22}

Since so many of his subjects reported no imagery at all, Woodworth discarded imagery as a cause of voluntary movement. Kinaesthetic imagery as an essential precedent to voluntary movement was found to be an unwarranted claim. At times, imagery was totally absent. Woodworth found the source of volitional movements elsewhere, namely in thought itself. Before one can perform any conscious action, there must be knowledge of the action to be done. In other words, before voluntary movement can take place, there must be perception of the movement and the intention to perform it.

The cue of the act is the thought, not the image. The most definite feature of the thought is the cause of the definiteness of the act. If it be allowed that there is such mental content that is not reduced to sensorial imagery, and that some of this content usually lies at the focus of attention, constituting the real point and meaning of the thought no reason remains for supposing that there 'must be' a sensorial image of the act which shall function as the cue of the movement.\textsuperscript{23}

Up to this point, Woodworth's conclusions are in close accord with the scholastic doctrine which maintains that all volitional

\textsuperscript{22}Ibid., p. 34.
\textsuperscript{23}Ibid., p. 56.
activities must be preceded by intellectual perception. Images may or may not be immediately present, but there must be cognizance of the action to be performed. Woodworth's investigations on the causes of a voluntary movement have also produced valuable objective evidence in favor of the assertion that a volitional activity is necessarily preceded by something more than mere kinaesthetic images.

Besides thought, however, Woodworth mentions one other factor as essential to voluntary movement—a neuromuscular set directly related to the bodily movement involved. "The complete determinant of a voluntary motor act—that which specifies exactly what act it shall be—is nothing less than the total set of the nervous system at the moment."\(^{24}\)

Woodworth's conclusions are sound as far as they go, but does voluntary movement consist only of conceptual elements and physical set? Woodworth has neglected to describe the most essential feature of all, namely the "voluntariness" of such movements. It is insufficient to describe voluntary movements without including an explanation of their essential constituents. A movement is voluntary not because it proceeds from thought or because it is dependent upon neuromuscular activities, but precisely because it proceeds from the fiat of the

\(^{24}\)Ibid., p. 59.
will. A voluntary movement is one whose very execution depends upon its previous acceptance by the self. All external acts of will proceed from the internal act; the two kinds of volitional activities are distinct, for the will may act without any external manifestation.

Now in a voluntary act, there is a twofold act, viz., the interior act of the will and the external act; and each of these acts has its object. The end is properly the object of the interior act of the will, while the object of the external action is that on which the action is brought to bear. The act of the will is twofold: one is its immediate act, as it were elicited by it namely, to will; the other is an act of the will commanded by it, and put into execution by means of some other power; e.g., to walk and to speak, which are commanded by the will to be executed by means of the power of locomotion... And thus it is that we can have the voluntary without an act, and this sometimes without an outward act, but with an interior act, for instance, when one wills not to act, and sometimes without even an interior act, as when one does not will to act.

26 Ibid., p. I, vi, a. 4, c.
27 Ibid., a. 3, c.
Outstanding among the modern experimenters in will psychology is Dr. Aveling of the King's College Laboratory at the University of London. Experimenters such as Father McCarthy, Honoria Wells, Stevanovic, and others conducted many researches on will, or problems closely related to will, under his able direction. He himself has made several intensive studies of will phenomena. One of the most important of these is the experiment on the influence of volition upon thinking. Other influences of will had been successfully studied by Aveling's students and collaborators.

In accordance with the conclusions of Ach, whose researches upon the will established the existence of 'determining tendencies' which follow upon volitional acts and, though sinking beneath the conscious threshold, tend to secure the carrying out of the willed activity, we found that other processes than those investigated by him were influenced in the same way. Thus, for example, Saidullah showed that it was possible by willing to increase the span of apprehension; Messer proved that the time of presence of one of several alternating visual after-sensations could in a similar manner be lengthened at the expense of the others; and Caws showed that willing to perceive a given symbol, exposed tachistoscopically among a group of
symbols too great to allow of simultaneous perception, increased the likelihood of its being perceived. 28

The purpose of Aveling's experiment was to find out the influence of volition on three cognitive processes: "the cognizing of experience, the awareness of relations between the items of experience (whether cognized or merely lived) and the production of ideal correlates." 29

The materials consisted of several groups of monochrome letters and colored symbols drawn on slides. A Michotte rotary projection tachistoscope was used for the exposure of the slides. The slides were divided into three different series of groups, each series containing twenty-four slides. Within each group, nine letters and symbols were arranged in three rows, and in each column were three items. The content of each slide was well beyond the perception span of all the subjects.

The effects of volition were secured by a comparison of results following two sets of instructions: (1) Observe all you can and record what you see; (2) Look for a given letter (or symbol or relation), if it should be shown, and record all that you see. The same materials were presented under each set

29 Ibid., p. 325.
of directions. All the expositions were made in a darkened room and each subject recorded his observations immediately after every presentation. The subject was asked to draw what he had seen and to note all his introspections in the processes of perceiving, holding, and recording the similarities which he recognized. The results were scored on the basis of indexes and value marks devised by the experimenter. For every correct item, two marks were given. One of these was substracted if there was an error in location or if a similarity was reported which did not actually appear. Besides the individual scores, three indexes were used to obtain percentages which represented expectation, loss due to set, and actual gain over and above these two variables.

The figures obtained showed a definite gain for the tasks in which the subjects made a previous determination to apprehend the similarities. From these general results, Aveling concludes that resolution has a decided positive effect upon intellectual perception. Relations, similarities, and specific items are more readily recognized if the observation has been preceded by will-acts. While some authors have attempted to attribute similar results to imaginal contents or preperceptive

30 Ibid., p. 327.
elements, Aveling claims that these mental factors could not account for the recognition of relations. Relationships were perceived regardless of position or external type of figure used.

There was a general loss, however, in the entire amount of material perceived. The subjects themselves accounted for this deviation in their introspective reports; they were unable to retain all that they saw long enough to record it. Aveling explains this loss according to the "drainage theory" proposed by McDougall.

Such loss could be explained on the ground either of a drainage of mental energy towards the item for which the subject was looking, with or without drainage away in the conation itself, or of a drainage of energy in holding the required item, which would result in a speedy sinking beneath the threshold of those items and relations which were not relevant to the main task. 31

If Aveling considers all mental energy in his "drainage theory" as something material and measurable, his theory is inadequate and even incongruous with the general, high caliber of his work. For the most part, however, Aveling's principles are based on the essential distinction between rational and sensory

31 Ibid., p. 329.
processes as set forth by the scholastics. But at times the influences of the British materialists seem to be reflected in certain parts of his writings.

A further interesting and significant observation was made concerning the perception of relations. In spite of the fact that several subjects apprehended only one of the given fundamentals clearly, they were still able to perceive the correct relationships. It is possible that in some cases the other fundament had been perceived but not retained. In any event, Aveling infers that these occurrences signified the possibility that "a relation can emerge clearly in consciousness and remain clear in the absence of one or both of its fundamentals."32 This point is substantiated by the experimental conditions themselves. Some of the subjects said they were cognizant of looking from one symbol to the other in order to find the relationship. But no eye movements were possible during the time the slides were exposed. Frequently, the two fundamentals were so far removed from one another that only one could possibly have been within the subject's span of perception.

Aveling demonstrates, by the results of his experiment, that there is a noticeable positive influence of volition upon thinking. While the same relationships existed in the two

32Ibid., p. 330.
presentations of slides, recognition or perception of these relationships occurred, for the most part, only when a definite will-act had initiated the observation.

If we will to observe a given object should it be presented among a number of other objects, there is a tendency for the consciousness of that object to be enhanced and/or held in mind at the expense of the others. If we are looking for a given relation, there is a greater probability of our finding it or, having found it, of holding it clearly in view.

E. H. Wild

Based on the hormic theory of McDougall and the principles of cognition introduced by Spearman, E. H. Wild performed a series of experiments to determine the influences of conation on cognition. It will be well first to understand Wild's use of the term conation. When he considers the effects of conation on the cognitive processes, he is considering the effects of attention. McDougall described conation as attention; and this is the meaning adopted by Wild. Conation, effort, attention, and mental energy are used interchangeably.

33 Ibid., p. 331.
34 See above, Chapter I, p. 8ff.
Test material, which would evoke different amounts of conation for the given performances and which would offer a wide survey of cognitive processes was selected for the experiments. The following tasks were given: simple cancellation, same and opposites, sentence completion, number-checking, multiplication, complex cancellation, inferences, and instructions. These tests were similar to the common intelligence-test forms and were administered to various groups of students both in the colleges and in the grade schools. Some of the groups were used to determine the influence of conation on rate, while others were designated to find out the effects of mental energy upon quality. Before these group tests were performed, the experiment was administered to six psychologists in order to secure detailed introspections on the various kinds of materials used. Mathematical formulae based on Spearman's principles were used to compute the objective data. Correlations were made between performances of the same subjects under the two types of directions and between the average scores of the group under the two sets of conditions. The most significant factor here is the method used to produce the difference of effects—i.e., to provide for a "conative attitude" or a "non-conative attitude." The whole research is naturally based on this condition, and subjective methods of inducing the conative attitudes were employed for the purpose. "The experimenter
used his personal influence to induce the required attitude in the subjects and the responsibility rested largely with the subject in a voluntary adoption of the attitude."\(^{35}\)

In the first of these tests, simple apprehension, for the most part, was required; and the results showed a large variation in rate and quality of conation. The same was true in regard to the tests on sentence completion. In the eduction of simple relations, carried on in the number-checking exercises, it was noticed that the variation of conation produces a corresponding variation in rate without any particular change in the quality of the cognitive operation. Wild describes multiplication as a complex reproductive process; and the effects of conation are dependent upon the particular multiplication exercise in question.

...in complex reproductive processes, conation is required in proportion to the extensity of the simultaneous cognitive operations (retention in consciousness and reproduction); that the possible variation in conation is greater if the extensity of the operations involved is smaller; that increased conation produces (a) an improvement in quality with unlimited time, by repetition of the reproductive processes for checking purposes, and

---

(b) an increased rate without change in quality under speed conditions, by the exclusion of all irrelevant cognitive processes to increase both speed of reproduction and extensity of cognition, and possibly also by increasing the absolute amount of mental energy.\textsuperscript{36}

Sentence completion involved both the eductive and reproductive processes, and the conation expended was in proportion to the subject's own facility in recall and the extensity of cognition required. In the test on "same and opposites", eduction took place on a conceptual level. The subjects were required by him, first, to reproduce mentally the meanings of word-symbols, then perceive them, then cognize the relationship existing between the meanings. Wild found that the eduction of relations on the conceptual level demanded intense cognition and, therefore, a great deal of conation. The same results followed the other tests on this level, namely complex cancellation, inferences, and instructions. The extensity and intensity of cognition was so great in these tasks that all available mental energy was needed for success. Not only was it necessary to direct conational energy towards the task itself, but also towards the elimination of all extraneous mental phenomena. In other words, intensive concentration was necessary in the perception

\textsuperscript{36}Ibid., pp. 344-345.
of relations and in all other of the higher thought processes.

Introspections obtained from the special groups of psychologists were classed as the qualitative experiments. Wild found that the results of these reports were of great value in the analyses of the quantitative results. The tests had been divided into special groups, and the introspections testified that the division was adequate. Tests on simple cancellation, factual sentence completion, and number-checking were judged to require minimal conation; tests on complex cancellation, inferences, and instructions called for a maximal output of mental energy. The introspective reports were evidently limited to a description of the amount of conational release; a description of the actual process or of other mental phenomena experienced during the time of the test was not included. The emphasis in this experiment seemed to have been placed on quantitative results, on rate or speed of achievement, and on the amount of material covered.

The general conclusions are much as one would expect. An increase in speed or in the amount of material covered demanded a corresponding increase of conation. However, effort did not seem to depend on the quality of the cognitive processes. No more conation was required to apprehend experience than to perceive relations or to educe correlates. In the apprehension of
qualitative material, conation increased the intensity of the cognition and, therefore, the efficiency of the qualitative processes. Likewise, when the goal (a simple task) itself required few cognitive operations or little intensity, the conational output was accordingly small. The experimenter was convinced by the results of his investigations, "that we do strive little or greatly, according to the instincts or sentiments at work in us at the moment and the degree to which they are aroused." 37

In appraising an experiment of this type, it is necessary to recall the fundamentals on which the entire work was based and interpreted.

The basic theory on which this investigation rests is the Hormic Theory of Action as restated by McDougall. On this theory all human activity springs ultimately from our instincts; "by the conative...force of some instinct every train of thought..., is borne along to its end. All mental activity is therefore purposive, it is a teleological process exhibiting the three aspects--cognitive, conative, and affective. "Our intellect or cognitive organization, is essentially the instrument of our purposes; it is brought into play in the service of our desires, the driving forces of the organism, which "are identical with the

37Ibid., p. 351.
impulses, the conative tendencies of our instincts.' Accepting this fundamental theory of the relation 'of conation, cognition, and affection', an analysis of the cognitive aspects of mental processes was found in Spearman's Principles of Cognition while the analysis of the conative aspects was based on Aveling's Principles of Conation. 38

From this quotation it is easy to see that a critical estimate of the experiment is not an easy task. Wild has based his conclusions and interpretations on many diverse theories, and it is a difficult process to separate the intricate combination which he has formed, and to understand clearly the inference of his conclusions. First of all, though he claims to have accepted Aveling's connotation of conation, in some respects his own description does not conform with Aveling's basic concepts. Many references throughout indicate that, for Wild, conation is attention or at times a sort of "effortful energy"; his explicit acceptance of McDougall's hormic theory reduces conation to a form of instinct. Strictly speaking, Wild's experiment is not an investigation in will psychology, but rather a study of the process of attention. This objection may be offered against our criticism: the purpose of Wild's experiment was not to investigate influences of will, but, rather, the influence of

38 Ibid., p. 348.
conation. While this hypothetical objection is true, there is still another consideration to be regarded. Many of the influences which Wild attributes to conation of a sensory kind or to cognition are really results of volitional factors. Perception of relations is an intellectual process, and no amount of instinct or sensory conation alone could evoke a rational process. Will is intimately related to intellectual cognition. While attention directs cognitive powers to an object, intellect and will direct attention. In view of these remarks, Wild's experiment, though the procedure, techniques, and methods were carefully planned and executed; has contributed only negatively to the psychology of will. He has shown both by quantitative and qualitative results that cognition is influenced by attention. But even as an investigation on attention, we must admit many serious drawbacks in the experiment. It will suffice to mention one of the most fundamental of these objections; voluntary attention is a rational process, and, as such, is in no sense a derivative of instinct as Wild infers when he professedly accepts McDougall's instinct theory.

Raphael McCarthy

Similar to the experiments of Ach in procedure and content is the work of Father McCarthy, S.J. Ach's experiments had
revealed that conflict between the determining tendency and the associative tendency constituted an interesting and significant part of his experiments on will. In the period of conflict arising from opposed motives, Ach had observed that mental processes occurred which greatly influenced the ensuing actions. Further experimentation was needed to find out what mental phenomena intervened to cause the predominance of one tendency over the other. Father McCarthy undertook to study precisely the conscious mental activities which occurred when the subject was stimulated to perform two diverse kinds of activities at the same time.

The methods of procedure closely resembled those of Ach. The subjects were required to establish specific habits under laboratory conditions. They learned nonsense words in paired associates until the appearance of one would immediately evoke the other member of the pair. While Ach had established 120 repetitions as the basis for his "associate equivalent", McCarthy required the subjects to repeat the syllables 160 times. A further significant modification was made: in Ach's experiment the subjects were instructed beforehand as to what they were expected to do when the stimulus appeared; McCarthy's subjects were not aware of their particular task until after the stimulus appeared. In this way he eliminated the expectancy variable. The method of presentation was as follows:
The stimuli were printed on white cards in letters of uniform size and shape. If they were red they instructed the subject to rhyme the stimulus. If they were green, he was to transpose the first and last consonant (e.g. the correct response for the word DOM, when it appeared in green, was MOD). When the word was printed in black, the subject knew he had to change the vowel (to give a response DIM, for example, to the black DOM). A blue syllable gave him a choice of rhyming or transposing as he wished. Before the appearance of the stimulus, our subjects knew neither what the word would be, nor what they were to do with it.

The subjects were previously familiarized with the meaning of the colors by responding to them with a series of words not used in the later experiments until the Reaction Times for each color were fairly constant. 39

Reaction time for each response was measured as well as the psychogalvanic reflexes.

In Ach's experiment, the false reactions of the subjects were many and were thought to indicate the strength of the associative tendency; opposite results followed in McCarthy's experiments. Ach had reported that hardly any of his subjects were able to overcome the associative tendency. Referring to

Ach's "false reactions" McCarthy says, "In our experiment this kind of false reaction is the rarest exception. Only once in the first group was the associate syllable given as the response to the stimulus."

Such contradictory results are the more remarkable when we recall that McCarthy required even a greater number of repetitions to establish the necessary association which Ach had set for his "associative equivalent." The subjects in McCarthy's experiment hardly ever responded to the stimulus with the learned associate; when they did so, they described it as being dimly present in consciousness. Finally, a further change was made in McCarthy's experiment; unfamiliar nonsense syllables were presented to the observers by showing them irregularly among those already learned. With the introduction of this change in procedure arose the tendency for the learned associates to appear. What factor explains the variety of results obtained? It is evident that the direction of attention is a guiding factor in the responses evoked by different stimuli. Thus, proper reactions are influenced both by the previous resolutions and by the concentration of attention on the task to be performed. "It seems clear that the appearance or non-appearance of the associate is conditioned by the quality or direction of attention. When the subject attends to

\[40\text{Ibid.}, p. 49.\]
the stimulus as a syllable, its companion syllable comes up; when he focusses on the colour, the associate fails to emerge into consciousness.\textsuperscript{41} Ach had claimed that success or failure to respond with the proper syllable depended upon the strength of the will-act. The determining tendency was able to overcome the associative equivalent only if it was stronger than the habit already established. In most of Ach’s cases, the determining tendency in each of the subjects did not succeed in predominating. McCarthy’s work like that of Lindworsky, Rux, and others refuted Ach’s conclusions. Both McCarthy and Lindworsky believe that the guiding power in laboratory controlled tasks such as these is attention. Experiments such as Ach’s do not test strength of will, but, rather, give evidence that results are dependent both upon the direction and quality of the observer’s attention. Results showed that, with McCarthy’s subjects, the companion syllable was evoked if the subject attended to the stimulus as a syllable. When they focussed on color, the associate failed to come into consciousness. The instructions had so directed the attention of the subject to the color which was to appear and to the operation which it signified that the previously learned associate was literally pushed out of consciousness. Consequently, the associate

\textsuperscript{41} Ibid., p. 85.
sylable, under the conditions of McCarthy's experiment, did not hinder the subjects in the performance of their tasks. There is ample evidence, both from results obtained in McCarthy's experiments and in the very descriptions and interpretations of the determining tendency which Ach himself had offered, that the associative equivalent is anything but a scientific measurement of will power as it once was claimed to be.

Other factors in McCarthy's experiment confirmed his refutation of Ach's determining tendency as a scientific measure of will activity. At this stage a change was introduced by means of the following instructions: "You will be shown a set of syllables of different colours. Rhyme everything you see and react as quickly as possible"; or "Reverse every stimulus", and later, "Change every vowel".\(^{42}\) These changes caused a pronounced struggle between the old tendency to react according to the original instructions and the tendency to comply with the new ones. However, from the fourth reaction on, the strength of the habit had been weakened and the old tendency rapidly grew less intense and was finally subdued completely. McCarthy points out the existence of two distinct will-acts under the changed instructions: "There was one will-act made when the subjects accepted the new instructions. There was another

\(^{42}\) Ibid., p. 92.
distinct will-act when the two tendencies clashed; and it was
this will-act that was immediately responsible for the specific
reaction in the individual experiments. In applying this
description to ordinary life, McCarthy is cautious in stressing
the necessity of intentional direction for any volitional
activity. In the conflict of impulses, one may predominate
over the other without the exercise of volition. Volition
enters the picture only when there is conscious preference for
one or the other, or intelligent direction of energy into this
channel rather than some other.

A determining tendency such as Ach has described is pro-
bably the result of volition, but, like the many other habitual
actions which have originated from a volitional source, it may
continue to function in virtue of itself. The subjects, by
voluntarily accepting the instructions, set up within them-
selves a "determining tendency" to accomplish the given task.
But in order that the tendency may actually express itself,
other abilities are needed; it is dependent, to some extent, on
the capacity to form verbal associations and the like. The
struggle which ensues is not between will and the force of
association, but between two "blind" associations. Volition
initiates the process, and the other tendencies or mental

43 Ibid., p. 97.
energies continue the activities so that the measurement of an associative equivalent is only an indirect measure of will at
the most.

McCarty's experiments brought to light a significant fac­
tor in the psychology of habit. As we have seen, specific
changes were introduced during the course of the experiment in
order to break the habits formed through repetitions of the
task. The objective results, together with the introspections
of the subjects, showed that these well established habits were
quickly broken when attention was focussed on an antagonistic
mode of action. Life experiences bear witness to the reliabil­
ity of these conclusions. An over amount of attention to bad
habits only strengthens them the more. Success in the removal
of these impediments is achieved more quickly and permanently
by directing our energy and attention to some opposite activity.

Because of the interdependence of will and intellect,
will-acts require foreknowledge of an end or goal. Closely
related to both will and intellect is attention. Without
attention there is no cognition; without cognition there is no
willing. Among these three powers exists an intimate relation­
ship. It is evident that attention is always a significant
volitional factor in all human activities. But an attempt to
measure strength of will accurately and in a quantitative way
is practically impossible. The immateriality of will defies
objective measurement. The conclusions which McCarthy drew from his experimental attempts to measure conation contain an honest exposition of these facts.

We began our research with the intention of studying conational activity with a view of measuring it, at least in some rough way. We must confess that we have not succeeded in doing so. Our data show that the psychogalvanic reflex is influenced by conation, and that the size of the deflection bears some proportion to the amount of conative energy released during the reaction. But the psychogalvanic curve is such a complicated one, resulting from so many different causes and modified by such a variety of factors, that we do not think it is (in the present state of our knowledge of it) a serviceable measure of conation. In fact our experiments have practically convinced us that it is futile to hope for anything like an exact scientific measurement of conation, especially when that conation is intentionally directed and thus constitutes a real act of will. 44

Honoria Wells

A very comprehensive experimental study of volitional consciousness was made by Honoria Wells at the psychological

44Ibid., p. 102.
laboratory of the University of London. The purpose of her research was an ambitious one: to analyze as completely as possible all the phenomena involved in acts of choice. Introspective methods were used in the investigation and reaction-time measurements were made throughout. The experimenter was particularly interested in determining the influence of affective states on volitional acts. For these purposes, attention was given to physiological factors as well as to the mental processes concerned. Physiological concomitants of emotion and feelings were measured and recorded by the psychogalvonometer, the pneumograph, and the sphygmograph.

This particular study is a significant one in the psychology of will. Previously, a controversy over the nature of the so-called "consciousness of action", had been in progress among various psychologists. Michotte and Prüm contended that the data in their experiments demonstrated the existence of a definite "consciousness of action", and that this phenomenon was, indubitably, of a rational nature and irreducible to sensory elements. Raymond Wheeler, likewise performed experiments on choice; on the basis of results obtained from these investigations he has denied the immaterial nature of the act of choice, and claims that all the phenomena of choice ultimately can be analyzed into images and sensations. Honoria Wells, in her very
thorough and extensive experimentations, has verified the reports of Michotte and Prüm.

The materials used and the procedures followed closely resemble those of Boyd Barrett's work on "Motive-force and Motivation Tracks". Several different liquids, odorless and colorless, and varying in hedonic quality, were presented to the subjects. Each taste was designated by a particular nonsense syllable. The experiment consisted of three stages: (1) Learning the tastes, (2) Recognition Experiments, (3) Choice Experiments. During the first stage the subjects established a strong association between the taste of the liquid and the nonsense syllable which was used as a symbol. When these tasks were completed, the recognition experiments were given. The reaction-time for each of the associations already formed was measured. In this way, the reproduction time was kept at a constant, and the experimenter thus eliminated any variable arising from temporal differences. Finally, the choice experiments proper were administered. Eight liquids were presented, two by two; and fifty-six combinations were used. As McCarthy had modified Ach's technique in order to prevent automatic responses resulting from many repetitions, Wells also introduced a change about midway through the choices for the same reason. Now nonsense syllables, representing unevaluated alternatives were used along with the old ones.
The experimenter observed that the appearance of the "new
tastes" occasioned motives of curiosity, and, later on, con-
flicts between certainty and opinion or belief.

The interpretation of results is practically the same as
those of Michotte and Prüm. Wells had asked her subjects to
"choose for a serious reason"; the subjects were then obligated
to base any and all choices on a motive-value. A process of
deliberation naturally ensued wherein the motive values were
weighed in the balance. It was during this period that "con-
sciousness of self" was predominant. The self as such enters
into the realm of consciousness and directs action towards one
or the other goal; at this point the subject is cognizant of
the self-in-action. Like Michotte and Prüm, Wells considers
this particular awareness as the nucleus of the whole voli-
tional process.

Reaction-time for the process of choosing depended upon
the motives which appealed to the subjects. If the immediate
motive did not comply with the standard of value first accepted
by the subject in the instruction, then the process was delayed
until some further means of strengthening the motive were ob-
tained. These motives were strengthened in many ways, and the
most important of the means used was "reference to the self".
Actually, the most frequent method of motive strengthening was
the intervention of self. When two motives at first appeared
equal or negative, the motive which was strengthened by referral to self was the one which predominated in choice.

The consciousness of self in action was the phenomena which caused the most serious controversy among the experimenters on choice. Wheeler strongly contended that the consciousness of willing was merely a derivative of the real basic phenomena. Such awareness of the self arises, first of all, from kinaesthetic sensations and images. Therefore, the subjects can analyze all volitional consciousness into these simpler contents. Wells vigorously opposed such an argument and offered her own observations and the introspections of her subjects as substantial proof for her conclusions. Her subjects had reported, definitely, that the consciousness of self-in-action was an experience which differed essentially from any of the muscular movements, kinaesthetic images, or visceral sensations which they may have had. While all these organic sensations differed from time to time and from person to person, the consciousness of action was especially characterized by its universality and intangible quality. The subjects found difficulty in describing their "awareness of self", but unanimously agreed that it was unanalyzable into sensations and feelings.

While we are entirely in agreement with Wheeler and others who hold that kinaesthetic and organic sensations are always to be found in volitional consciousness, we
can also show that our subjects clearly distinguished a phase in consciousness when 'self-in-action' became momentarily focal. Though this immediate awareness of 'self' was very fleeting and readily displaced again by the sensory processes, our subjects were quite clear and insistent in emphasizing the radically different nature of awareness of kinaesthetic and organic sensations on the one hand, and the consciousness of 'self-activity' on the other. Their reports show that they find it possible to separate the two when (1) consciousness of 'self-activity' and kinaesthetic and organic phenomena are present together in consciousness, (2) 'self-activity' occupies the focus to the relative exclusion of everything else.45

While the experimenter's assertion, that "self-awareness" in volitional activity differs entirely from sensory experiences, is well substantiated by facts, the claim that kinaesthetic and organic sensations are always present in volitional consciousness is doubtful.46 These sensory concomitants form no constituent part of the will-act. It is true that they are often present as accompaniments, but certainly an internal act of will such as acceptance or resolution may take place without any corresponding physiological movements. A generalization

46 See above p. 169.
such as Wells has made would seem to make these concomitants a necessary, integral part of the volitional process. However, others like Wells, have emphasized the general presence of kin-aesthetic elements in the volitional process.

During the period of deliberation, when the subjects were engaged in weighing their motives, emotional responses were scarcely ever evident. This particular stage in the process of choice was characterized by its abstract nature, and was confined to a consideration of non-sensory principles. But when the subjects were confronted with difficult choices, or when the motive in view obliged them to choose an unpleasant alternative, the forceful direction of energy into an undesirable channel brought about physical reactions. Vivid experiences, such as were had in difficult choices, were accompanied by noticeable deflections in the psycho-galvanic recordings.

The experiment of Honoria Wells has not contributed much in the way of original findings to those already presented by Barrett, Michotte, and Prüm. The modifications which she introduced eliminated some of the variables which had proven to be noticeable disadvantages in the other experiments on choice. One of the chief values of her experiment is the confirmation it offers for the results found by Michotte and Prüm. The experiment performed by Wells, more scientific in detail and execution than its predecessors, further substantiated the
evidence of the irreducible nature of volitional phenomena. Wells has provided a worthy objective testimony of well established principles, and her experiment has proven to be a strong defense against the materialistic contentions of Wheeler and others.

In our summarized account of the classic will experiments, there is a noticeable fundamental agreement among the investigators. Though each of these experiments was carried on independently of the others, and oftentimes in different countries, the results are remarkably similar. In all of the experiments we have described, both the experimenter and the subjects reported a special form of "self-awareness" in the volitional process. Inevitably, the consciousness of self was found to be indescribable and irreducible. The consensus of opinion among all these experimenters is a strong, concrete confirmation of scholastic principles. The very objectivity of the evidence does much to enhance theoretical principles which are characteristically abstract and, oftentimes, intangible and vague in the eyes of modern philosophers and psychologists. If the experimentations have done nothing else than produce objective corroborations for the essential principles of volition, the contribution may be considered well worthwhile.
CHAPTER V
EXPERIMENTAL MATERIALS AND PROCEDURES

From the foregoing investigations on will, as well as from our own scholastic concept of the nature of will, it is evident that no direct measurement of will is possible. However, the effects of will acts are noticeable in everyday life. For example, determination, or the will to achieve certain goals, is decidedly influential in the actual attainment of such goals. In these cases, internal acts of will, whether they be decisions, resolutions, or desires, actually direct the course of a person's actions.

Our problem was to devise certain situations in which we might observe the change in mental processes following upon certain voluntarily accepted sets of instructions. For our particular study, we decided to investigate changes introduced by an instruction calculated to make the subject exercise some deliberate self-initiated control over processes of perception, imagination, and thought. In a study such as ours, objective data alone would be insufficient. For this reason, we followed the traditional procedure for obtaining introspective reports.
Through the introspective reports of the subjects, together with tabulation of their reactions to the given tasks, we were able to compare the results, in the case of a natural spontaneous acceptance of the tasks, with those in the case of deliberately self-initiated or volitionally directed activity. Whereas it is obvious that some voluntariness entered both sets of performances, still, unless we wish to allow that the instructions determined the subjects to act, the further effects of volition or of self-directed activity by the subjects themselves become apparent in the second set of experiments.

In the present chapter we will describe the materials used and the procedures followed in our attempt to investigate the relationship between volitional factors and other mental acts. In the following chapter we will present an analysis of the introspections and other responses given by the subjects.

The present experiment, therefore, proposed to obtain objective and introspective data showing some effects of
volitional factors upon perception and the higher processes of abstraction. By a comparison of results obtained from tests performed with an attitude of naive observation, with those


obtained after a specific task was assigned, we intend to describe some of these effects. We will attempt to observe likewise how these effects differ in the case of sensory processes as compared with those of the rational processes.

Preliminary investigations were made with our materials on twelve practice subjects in order to determine their validity for the actual experimentations.

General Description of Experiment

For the sake of clarity, we will first give a rather broad outline of the experiment as a whole; and then, present a detailed description of the materials used throughout and of the procedures followed in each experimental sitting.

All the materials used were mounted or printed, according to the content, upon large white cards. These cards ranged from 6 x 4 to 8 x 5 in size; and they were divided into four sets. The first set consisted of ambiguous figures; the second set contained specially chosen stimulus words; the third set included four kinds of similarities, namely pictures, words, numbers, and geometrical designs; the fourth set contained incomplete syllogisms. All of these materials will be fully described in a later discussion.
These four sets of cards required four different tasks. The first two sets, namely ambiguous figures and stimulus words, composed the sensory data for our experiment. While the two latter sets, similarities and incomplete syllogisms, provided material for rational activities.

Since the purpose of our experiment was to observe the influence of volitional factors on mental activities, it was necessary to designate the performances of the subjects under two headings; "involuntary" and "voluntary". Let it be understood from the outset that these designations do not indicate a rigid line of demarcation between the two experimental conditions. That is to say, tasks performed in the "involuntary" division were not assumed to be entirely lacking in volitional activities. These terms are used simply for purposes of convenience and clarity, and refer to the tasks as performed under the two types of directions. Thus, all four types of cards were presented to the subjects; first, with directions proposing merely general observations, and these responses have been indicated as "involuntary". Secondly, the same four types of cards were presented to the same subjects with directions which would be expected to induce, on the part of the subject, special voluntary activities. We have designated this second group of responses under the term "voluntary".
It will be well to notice at this point that, wherever possible, we chose new though similar tasks for the voluntary trials. This was done in order to prevent the subjects from merely repeating the chain of imagery of the first task. In the case of ambiguous figures, however, since the task involved an attempt to see ambiguities, it was found that scores could not be compared if different figures were used.

The experiment was divided into three sitting periods. In the first one, all four sets of the above mentioned cards were presented along with certain directions. These directions asked the subjects merely to observe the materials without requiring them to make voluntary selections of specific factors. In the second sitting period, the subjects were given the two sets of cards dealing with sensory data, namely the ambiguous figures and the stimulus words, with directions calling for voluntary selection. In the third sitting period, the experimenter presented the two sets of cards dealing with rational processes, namely the similarities and the incomplete syllogisms. Along with this material, directions were also given to induce will-acts from the subjects.

The experimenter decided upon three sitting periods for several reasons. First, at least two sittings would be needed because the four tasks with two different instructions would have been too fatiguing for the subjects. Moreover, for all the subjects, the tasks performed with naive attitude had to precede those with instructions to "seek" etc. Finally, in order to prevent undue emphasis on one kind of material in
preference to another, during strong volitional activity, this three-part division enabled us to alternate the order of presentation. Thus, the fourfold task with "attitude of seeking" was alternated among all the subjects: that is, sensory material was preceded by rational material for half the subjects, and followed by it for the other half.

Since the secondary aim of the experiment was to obtain whatever temporal differences in response might occur, a stopwatch was used to record the time of each performance.

The experiment was administered to ten subjects. All the subjects, including the twelve practice subjects used in the preliminary investigations, were intelligent adults of college level. Subjects unacquainted with laboratory procedures and untrained in formal logic were purposely chosen for the experiment. Previous training in laboratory work or formal logic would seem to prejudice the results. Our purpose was to obtain results which would be a rather representative sample of the general population. However, each subject was given simple preliminary exercises in reporting introspective data to make clear to him the type of data desired in the experiment. Our results seem to show that intelligent subjects, though untrained, are able and willing to report quite freely their own introspections.

The length of time required for the administration of the three parts of the experiment to each subject varied from person to person, since some were more voluble than others in reporting their introspections. However, the experiment required at least four and a half hours, and most of the time as much as six or eight hours.
Specific Description of the Materials

A. The Ambiguous Figures.

Five ambiguous figures were used; namely, Jastrow's duck-rabbit, the Necker cube, the Schröder staircase, the variable star, and the Grecian urn. The above were chosen particularly because they provided a variety in type of ambiguous figures, and also because they are figures which have been used to great advantage in the many experiments on fluctuations of attention. Each figure was drawn in black ink on a plain, white card.

B. Ambiguous Terms.

Ten words, each capable of arousing two or more distinct images because of ambiguous meanings, were chosen for this

---

task. Care was taken in the selection of these words so that the distinct meanings attached to each might be of the same category. For example, terms which, in their double meanings, commonly partake of both a noun and verbal character, were mostly avoided, such as jam, lock, bridge, etc. The following words were used:

Part I (Involuntary): glass, horn, joint, bond, corn.
Part II (Voluntary): trunk, cord, star, front, yard.

Each word was printed in large letters on a separate, plain, white card.

C. Similarities.

This test was subdivided into four different parts, each part representing a certain type of similarity.

(1) The first type consisted of a series of eight pictures mounted on white cards, four of which belonged to the same specific category. Some of these pictures represented objects (animals, cutlery, insects, tools, etc.); others represented various

\[ \text{Figure 3} \]
\text{The Variable Star}
activities (feeding birds, walking, swimming, etc.) All the pictures used for this task were taken from The Meyers Mental Measure Form No. 2.

(2) Each of the verbal cards contained eight words, four of which were more similar than the others. The verbal similarities included the following sets of words:

Part I (Involuntary)

1. boat, sail, motorcycle, move, horse, row, track, train.
2. round, ellipse, lines, triangle, draw, cube, square, circle.
3. razor, chop, shave, beard, knife, wood, whittle, shear.

Part II (Voluntary)

1. Street, speech, send, mail, pole, messenger, hurry, telephone.
2. fork, plate, spoon, cup, table, eat, saucer, bowl.
3. mean, bribe, smuggle, take, steal, beg, lie, bad.
(3) The third set of cards in the similarities group consisted of eight numbers on each card. Four of these numbers belonged to a specific class. The number cards were arranged as follows:

Part I (Involuntary)

1. 9 4 8 7 18 12 5 13
2. 23 7 53 5 103 9 24 43
3. 15 7 23 8 24 4 11 6

Part II (Voluntary)

1. 4 9 24 6 17 8 16 18
2. 8 63 17 81 29 18 46 45
3. 3 7 16 5 13 21 8 15

(4) On each of the fourth set of cards was mounted a series of eight geometrical figures; and, again, four of these were more similar than the others. All the geometrical figures used in this exercise were taken from the Otis Group Intelligence Scale: Advanced Examination, Form A and Form B.

D. Logical Propositions.

Each of the cards used for this test contained the two premises, major and minor, of a logical syllogism. These statements were chosen so as to represent the four main types of propositions: namely, universal affirmative, universal
negative, particular affirmative, and particular negative. Two of the cards contained false premises, but the form of all of them was correct. The following statements were used:

Part I (Involuntary)

1. All fruits are sweet
   Spinach is not sweet
2. Some mushrooms are poisonous
   All mushrooms are plants
3. No cow has wings
   All sparrows have wings
4. Some trees never decay
   All trees belong to plant life

Part II (Voluntary)

1. All animals have fur
   A negro has no fur
2. Some carnations are white
   All carnations are flowers
3. No angel has a body
   All monkeys have bodies
4. Some dogs have no feet
   All dogs are animals
The Procedure and Instructions

In order to make the introspections thorough, the observations were broken up into three distinct periods ordinarily used in introspective reports: namely, a fore period, main period, and an after period. Failure to thus divide observations have, in past experiments, accounted for failure to recount effects of volition.

Some of the earliest experimental studies of voluntary activity failed to produce evidence for the existence of will, so far as the immediate observations were concerned.

Subsequent analysis of the problem revealed the source of difficulty in a fallacy that is surprisingly common among psychologists even today. Experimental conditions, it appeared, were such as to exclude the will-act from observation altogether, since volition occurred when the subjects accepted the proposed tasks before observations were begun. Thus, in order to investigate this aspect of behavior and experience, it is necessary to fractionate observations, including a fore period as well as the main and after periods.

Sensory and Rational Processes--Involuntary

Three simple preliminary exercises were given to the subject in order to clarify for him what the experimenter meant by "introspective reports". For the first exercise he was given a card with a colored design on it. The experimenter, by means of questions, endeavored to make the subject report his impressions, reactions, images, thoughts, physical feelings, sensations, etc. The subject was also asked questions concerning his impressions before and after the presentation.

In the second exercise, the experimenter presented a card with a simple statement on it; and the same procedure followed.

In the third exercise, the subject was asked to close his eyes, and the experimenter gave him an object to feel. The subject was asked again to report all introspective data.

After these exercises, the subjects seemed to understand more clearly the type of information required of him.

The subjects were then asked to listen carefully to the following general instructions:

I have a number of cards here which contain different types of material. When I present them to you, look at them and observe all you can. As you look at the cards, report aloud the progress of your thoughts. Tell all your
impressions and reactions to these cards. The principal purpose in this experiment is the observation of your own mental experiences rather than the attainment of any specific answers. When you have completed each card, I will ask you to tell me all the introspections you can remember. I want you to tell me as much as you can about your own impressions before each card is presented, during your observation of the cards and after you have finished each card. Remember to report aloud while you are examining the cards.

These instructions were read as often as was necessary, and any further questions of the subjects were answered. It was made clear to the subject that these instructions applied to all the material given in this sitting. Before each set of materials was presented, specific instruction for each set was also given.

(1) The first test administered was the one using ambiguous figures. The instructions were as follows:

On each of these cards a figure has been drawn. While looking at them you may observe that they shift positions. Do not attempt to control these changes, but keep a passive attitude. When I say "ready", look at the picture, fixate on the dot, and report any fluctuations that occur; and do so until I say "stop". After each you will be asked to report further observations you have made. Retain a passive attitude throughout the experiment.
These directions were modeled on those given by Guilford and Braly in their experiment. Their purpose, likewise, was to eliminate, in so far as was possible, specific volitional factors.

The subject was permitted to observe each card for one minute. The time was limited and made the same for each so as to permit more accurate comparison of results. The experimenter recorded the number of shifts as indicated by the subject.

(2) Before presentation of the next set of cards, the following instructions were given:

Each one of these cards has a word printed on it. When I show it to you, I want you to report whatever images happen to come to your mind.

No time limit was set for this test, but the time used for each observation was recorded by means of a stop-watch.

(3) The similarities were presented next, accompanied by the following instructions:

These cards contain different types of material. I want you to look at them and observe all you can; tell me all about them while you are observing. When you have finished, put the card aside and we will go on to the next one. Keep in mind that I

---

want you to describe your own reactions as well as the cards before you.

Two cards of each type were given to the subject and the time used for each observation was likewise recorded.

(4) The fourth test was the one on logical propositions:

Here are some statements which I want you to read. When you have read them, tell me what you think about them. I am particularly interested to know your own thoughts and impressions about each card.

In this test the time was recorded not only for the observation in general, but also in regard to length of time taken to arrive at a conclusion, if one was made.

Experimental Sitting II

Sensory Processes--Voluntary

Dr. Aveling, in his experiments on the "Influence of Volition on Thinking", found that when a subject was told to look for a given object or relation he would have to exert his volitional powers in order to accomplish the task. On the other hand, instructions which required the subject merely to observe the material before him did not have such results. 6

In our experiments, we also made use of this differentiation. The general instructions regarding introspections were much the same as those used for the previous experiment. In the special instructions preceding each test, the subject was now required to perform a specific operation or to look for a definite relationship.

Procedure

The subject was again comfortably seated at the table. The experimenter, by means of his instructions, endeavored to induce the subject to do his very best. While in the previous experiment the subject was asked merely to give his impression on the cards presented to him, in this experiment he was told, definitely, to seek for a certain type of objective. In doing so, we hoped to evoke in the subject an attitude of determination. The subject was encouraged to try as much as possible to do well in performing the given tasks. The following general instructions were given to the subject:

In this experiment, I am going to present to you cards similar to the ones you had before. Again, I want you to observe as carefully as possible your own mental experiences. Report aloud the progress of your thoughts, and after you have completed the task I will ask you to tell any further introspections that you can remember.
A. The Ambiguous Figures.

Now I am going to present to you the ambiguous figures. This time, however, I want you to try to shift the figure to different positions, back and forth, as fast as you can. Fixate on the dot and report each shift by saying "now, now", etc. I will give you a trial on each of the different figures and record the number of shifts for each. After every trial I will ask you to describe your experiences.

Each one of the figures was presented in turn, and the rate of oscillation for one minute was recorded. Immediately afterwards, the subject was asked to report his introspections. After a suitable rest period was had, the subject was given Part II of this experiment. The instructions were as follows:

Each of these cards has one word printed on it, words similar to the ones you saw in the last test. This time I want to see how many different kinds of things you can picture to yourself when you see each one. Try to do your very best. Remember also to observe all your mental experiences during this task.

As in all the other tests, the subject was asked to report his introspections before, during, and after the presentation of the cards.
Experimental Sitting III

Rational Processes--Voluntary

In this final series of tests, the same type of material was used for the rational processes as in the first experiment. However, the instructions were entirely different. This time the subject was asked to look for the similarities in the pictures, words, numbers, and geometrical figures, and to draw a conclusion from the logical propositions. The subject was asked to direct his mind toward the achievement of a specific goal, and the experimenter encouraged him to do as well as possible. The instructions for the similarities were as follows:

I have four different kinds of cards here. In each of the cards I want you to look for a definite similarity. For example, among the series of pictures you will find several which are more alike than all the rest. Look and see which ones they are. Try to do your very best. Remember to report aloud the progress of your thoughts. After you have finished, put the card aside and we will go on to the next one.

The experimenter then presented three cards of each type: namely, pictures, words, numbers, and geometrical figures. After each, the subject was asked to report further intro-
spectations. By means of a stop-watch we recorded the time taken
to find the relationship.

After a sufficient rest period had been provided, the
subject was given the instructions for the logical propositions.

There are two statements on each
of these cards. I want you to
read them carefully, and then
tell me what conclusion you would
draw from such statements.
Remember to report your intro­
spections.

By directly asking the subject to look for a conclusion, the
experimenter deliberately introduces the volitional element
into the test. Dr. Moore reminds us, and we agree, that draw­
ing a conclusion sometimes depends on the will to do so.

"Wilhelm found that when subjects are presented with two
premises and they are told merely to read and understand them,
they do not necessarily draw a conclusion. Drawing a conclu­
sion, therefore, depends on the will to do so."7

7Cognitive Psychology. Chicago and New York: J. B. Lippincott
Company, 1939, p. 378.
CHAPTER VI
INTROSPECTIVE ANALYSES AND CONCLUSIONS

Interest in the influence of will on the thought processes has been prevalent in the works of most great philosophers. Aristotle, and more especially St. Thomas Aquinas, devoted many dissertations to this widely discussed topic. It is a well established metaphysical principle that volitional factors often influence thought. Again, therefore, let it be clearly understood that the purpose of our experimental investigation was neither to question this principle nor to prove it. We have merely attempted to describe more fully the manner in which these volitional effects are manifested in both the sensory processes and in the higher thought processes.

As we stated above in the description of our experimental procedures, we endeavored to reveal the effects of volitional factors principally by means of our directions. While the first set of cards was presented in such a way as to evoke general observations, the second part of the experiment was given with directions specifically designated to induce voluntary activities. One of the cardinal principles of
Thomistic psychology is the essential unity of man's hylomorphic nature. St. Thomas repeatedly insists that it is impossible, at any time, to observe a single human process in an isolated fashion. In the most insignificant of human operations, as well as in the most complicated processes of thought, the whole man is concerned. However, it is evident that while man as a whole is involved in each of his activities, at times, one process may dominate the pattern of his actions. We do not assume, then, that volitional factors were totally lacking in the first part of our experiment. On the contrary, we maintain that the very acceptance of the task is a volitional act. In both parts of our experiment, volition, in the form of acceptance of the task, is present. We might state our purpose more definitively by saying that we attempted to discover, under controlled conditions, the qualitative aspects of the processes of perception and of abstraction, when volitional factors dominated the pattern of these activities.

In the first stage of our experiment, the reactions of the subjects were principally passive, i.e., after the task was accepted they made no positive attempts to discover any particular aspect of the stimulus. They observed the material in front of them, reported numerous associations, images, etc. However, when the same subjects were instructed to observe certain features of the stimulus cards, both on the sensory
level and on the intellectual, a positive dynamic element operated which evidently was not present in the previous stage of the experiment. In the first part, the external stimulus largely occupied the attention of the subject; but in the second part, his reactions were clearly stimulated by energies originating in the person himself.

For the sake of clarity, we will discuss each section of the experiment separately, before making general comparisons and conclusions.

A. The Ambiguous Figures, Spontaneously and Voluntarily Shifted.

The most outstanding objective difference between the two reactions to the ambiguous figures was the rate of shift; and this proved to be a very noticeable one. While the subjects sometimes failed to see any change of position whatsoever when they were asked to maintain a passive attitude, they frequently obtained a very high rate of shift when they were induced to do so voluntarily. Table I shows the rate of shift for one minute under the two types of conditions.

Besides the volitional effects on rate of shift, there were others which concerned the type of shift observed. The oscillations noticed by the subjects in the first test consisted, for the most part, in two or three positions commonly observed in a random observation. In the second part of the
Table I

Rate of Involuntary and Voluntary Shifts on the Ambiguous Figures

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Duck-Rabbit</th>
<th>Grecian Urn</th>
<th>Variable Star</th>
<th>Necker Cube</th>
<th>Schröder Staircase</th>
</tr>
</thead>
<tbody>
<tr>
<td>K. C.</td>
<td>0</td>
<td>42</td>
<td>0</td>
<td>14</td>
<td>5</td>
</tr>
<tr>
<td>S. R.</td>
<td>6</td>
<td>67</td>
<td>11</td>
<td>56</td>
<td>7</td>
</tr>
<tr>
<td>R. L.</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>74</td>
<td>3</td>
</tr>
<tr>
<td>A. D.</td>
<td>0</td>
<td>20</td>
<td>0</td>
<td>29</td>
<td>2</td>
</tr>
<tr>
<td>S. L.</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>24</td>
<td>6</td>
</tr>
<tr>
<td>I. B.</td>
<td>0</td>
<td>67</td>
<td>0</td>
<td>24</td>
<td>4</td>
</tr>
<tr>
<td>M. H.</td>
<td>0</td>
<td>40</td>
<td>0</td>
<td>34</td>
<td>5</td>
</tr>
<tr>
<td>P. C.</td>
<td>0</td>
<td>14</td>
<td>2</td>
<td>22</td>
<td>6</td>
</tr>
<tr>
<td>D. S.</td>
<td>2</td>
<td>7</td>
<td>4</td>
<td>10</td>
<td>6</td>
</tr>
<tr>
<td>S. A.</td>
<td>0</td>
<td>47</td>
<td>4</td>
<td>44</td>
<td>3</td>
</tr>
</tbody>
</table>

experiment, when they definitely put forth volitional effort to increase their rate of speed, the subjects also increased the variability in the kind of shifts observed. The following are introspections of the same subject on the variable star figure.
Involuntary: "This is some kind of a floor pattern or ceiling pattern. It looks just like the one we have in Church. Looks like drawings I have seen, too. Sometimes it looks like it might be a pile of blocks--just now they shifted their position."

Voluntary: "There were various positions of blocks; first they seemed to be at the left, then they shifted to the right. Then again, it looked like a star; then in all different positions of diamond shaped figures. Sometimes it seemed to fold up and then assumed the position of flat shaped diamonds; then back to the blocks again."

Hence, when the mind of the subject was directed to a more specific task, he was able to narrow his field of operation; consequently, he obtained a quite different result. In the absence of this directing influence, images were abundant in the reports of the subjects; but they were of a type which interfered with the varied perception of the stimulus before them. When voluntary effort was lacking, the figures served more as stimuli for recall of other incidents, experiences, objects, etc., which were irrelevant to the present task.

In a previous work on voluntary shift of attention with ambiguous figures, it was found that persons who showed a high rate of voluntary shift were those who had a corresponding wide
span of perception. In our present experiment, we are concerned only with these relationships within the individual himself. However, if the ability to shift a figure rapidly is dependent upon span of perception, may we not say also, since great differentiations of speed were evident in each individual under differing conditions, that voluntary effort itself, within limits, increases the span of perception for each individual. A mere volition is not able to increase the native capacity for breadth of perception with which the individual is endowed, but there is evidence that volitional factors tend to actualize the existing potentialities. The same capacity for shifting these figures was present in both parts of the experiment. However, under the influence of voluntary effort exerted in the second part of this test, the subjects were activated to perform far more efficiently; they perceived details and attained rates of speed, which, under a passive attitude, remained unknown to them. In some cases, the will to see, along with the added effort induced by the instructions, brought about the perception of a figure which the subject had missed completely in the previous test. This was especially the case with Jastrow's Duck-Rabbit figure. Eight out of ten subjects

---

were unable to see the rabbit position in Test I, while in Test II, all but one subject perceived both the duck and the rabbit.

The limitations of volitional influence were manifested in the reports of the subjects when they complained of their failure to shift as rapidly as they desired. At times they found themselves helpless in spite of their greatest attempts. On such occasions, expressions of dissatisfaction and of irritation were numerous. The following are examples of these experiences.

"I just felt like pushing it and was provoked because it wouldn't go faster."

"I didn't think this was working fast enough. Even when I think hard I couldn't make it go as fast as I wanted it to."

"Twice I seemed to have a frustrated feeling. I couldn't make it go back when I wanted it to go."

"When I saw how different the shifts could be, I tried hard to see how many possible kinds there would be. I felt like pushing it, yet I looked only at the dot."

"Took me a long time to change from the diamonds to find the cubes. I couldn't get rid of the diamonds and it bothered me because I couldn't find the cubes quickly enough."
On fifteen different occasions, feelings of irritation and dissatisfaction were displayed by the subjects in their attempts to shift the ambiguous figures.

While the stimulus itself and the faculty of perception are indispensable in a task of the kind just described, we have much evidence that volitional factors, because of their directive powers and energizing capacities, equip the subject with the determination needed to evoke the latent responses within him, which otherwise remain dormant. When volitional factors dominate the process of perception, not only is the field of perception enlarged, but the time required to perceive the stimulus is greatly lessened. In both parts of the test, the subjects were aware that the figures shifted; yet only when volitional factors were introduced were they able to shift the figures quickly or to perceive the many different kinds of positions in each case.

B. Ambiguous Words.

The particular words used for this test were chosen because, in our preliminary work, they were found to be words which tended to arouse many different kinds of images in the observer. In the test requiring general observation only, the reports of the subjects were characterized by typical free associations and revery. The stimulus word at once evoked some
familiar experience, and from there on the images which occurred followed from one association to the other. The images were numerous but unrelated for the most part. While the sum total of the images reported often reached a large number for each individual, perhaps not more than one or two of these images actually were related to the stimulus word itself. The following introspections are typical responses to the stimulus words in the first part of the test on ambiguous words.

**Glass:** "Glass makes me think of the glass that was broken just today. My sister put her knee through the book case; and the broken pieces were all over and we were all picking them up. When my brother came the last time, his glasses were broken and he had them taped together. I wonder when he will come again. Maybe the folks will drive down to see me. I haven't heard from him for a long time. My brother is going to New York to attend Cornell. He used to read books in the moonlight and practically ruined his eyes. He broke his glasses so often. He has bad eyes and hardly made the army--he couldn't be a pilot."

**Corn:** "I can see lots of corn growing in fields; it's about three feet high now. I am recalling the day we saw those fields after a big rain. They were flooded with water and the green against the blue sky was beautiful. In the movie, "Adventure", the fellow and girl stole some chickens and ran through the cornfields and
they got away from the farmer who had a gun. Those farms around the lake were certainly beautiful ones."

Horn: "Little boy blue come blow your horn. We had a play; and a little neighbor boy was boy blue and had a cute blue suit. The little girl was 'Mary quite contrary'. A bunch of little girls were the flowers in the garden, and little boy blue had a horn, a little brass one. 'The pretty maids all in a row' sang and I can just hear the tune they sang. I am going through all the parts of the play. I know a girl named Carol Horne, but her name has an e on the end of it. She doesn't do so well in school, neither does another little boy I know."

In the second part of the test, the subjects were asked to try to evoke as many different kinds of images as they could when they were given each word. Here, each subject himself was engaged in actively performing the task, and was not merely assuming a passive attitude toward the stimulus in front of him. Previously, the cognitive and associative processes had dominated his field of activity; now the subject, striving to accomplish his task well, experienced some order in these activities. As a result, the images which occurred, numerous as they were, formed an entirely different pattern of response. The subject did not relate incidents or recall associations, but set out to search for all possible types of images related
to the stimulus word. Consequently, his introspective reports were given in the form of enumerations, reflecting the directive and organizing powers of volition. If other associations were made, they were brief in duration and the subject quickly endeavored to switch his powers of imagery to a more related field. Although no time limit was set in either test, a great difference existed in the amount of time used for performances. The subject, in Part I, leisurely recalled and related the imagery which flowed through his mind in the form of free associations. However, in Part II, the subjects earnestly endeavored to report as quickly and as briefly as possible the images which they experienced. While the introspections of the first test were almost entirely lacking in manifestations of striving, those of the second test always revealed the volitional factors actually at work. Introspections from the voluntary tests:

**Star:** "Stars so bright over the lake, movie star, 'star boarder', star costume, artificial stars, 'When you wish upon a star', star eyes--that's all I can see, there should be more but I can't 'catch' them. Sometimes when I try hard, things seem to blur a bit and then stop coming. I wish I could get more."

**Cord:** "A string, a violin 'chord', cord in the nerves, a spinal cord. I can see all kinds of string for packages, shoe laces are cords, and a scissors'
cord, electric wires are called cords, a silk cord on a lampshade. I am trying to see if there are cords in any other class except in the line of strings, but I guess not. Perhaps I can get more if I try, though. I know I've heard of another cord, but I can't seem to see any others."

Star: "Star on a cow's forehead for a brand mark, star in the sky, star over the crib, movie star, Starfish--kind of pinkish tan color, morning star, 'see stars' when you are hit on the head, a star pupil. Trying to see other kinds of stars. Let's see now, the 'Star', a name of a newspaper--there should be others. I can see a store named, 'The Star'. Guess that's all I can get though I am still trying to see others."

The total number of images reported in the test performed under the influence of volitional factors was not much greater than the total number obtained in Part I. However, the chief differentiation occurred in the number of "associate" images; i.e., those images immediately relevant to the stimulus word. Table II shows the contrast existing between the two tests and the differences in number of unrelated images as compared with "associate" images under the two sets of directions. Table II also reveals the high positive correlation between the two types of images in the voluntary and involuntary tests. The number of associate images is low for all words in the involuntary tests and high for the voluntary ones. The random images
Table II

Scores for "Associate" Images (A) and Random Images (R) in the Involuntary and Voluntary Tests

<table>
<thead>
<tr>
<th>Words</th>
<th>Glass</th>
<th>Joint</th>
<th>Bond</th>
<th>Horn</th>
<th>Corn</th>
<th>Total</th>
<th>Yard</th>
<th>Trunk</th>
<th>Cord</th>
<th>Star</th>
<th>Front</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subjects</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>K. C.</td>
<td>13</td>
<td>5</td>
<td>8</td>
<td>2</td>
<td>12</td>
<td>2</td>
<td>9</td>
<td>4</td>
<td>10</td>
<td>4</td>
<td>69</td>
<td></td>
</tr>
<tr>
<td>S. R.</td>
<td>11</td>
<td>3</td>
<td>13</td>
<td>2</td>
<td>7</td>
<td>2</td>
<td>11</td>
<td>2</td>
<td>7</td>
<td>2</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>R. L.</td>
<td>16</td>
<td>3</td>
<td>15</td>
<td>3</td>
<td>13</td>
<td>2</td>
<td>14</td>
<td>3</td>
<td>11</td>
<td>2</td>
<td>82</td>
<td></td>
</tr>
<tr>
<td>A. D.</td>
<td>7</td>
<td>3</td>
<td>5</td>
<td>2</td>
<td>5</td>
<td>4</td>
<td>6</td>
<td>1</td>
<td>7</td>
<td>2</td>
<td>42</td>
<td></td>
</tr>
<tr>
<td>S. L.</td>
<td>13</td>
<td>2</td>
<td>7</td>
<td>1</td>
<td>8</td>
<td>1</td>
<td>10</td>
<td>2</td>
<td>11</td>
<td>2</td>
<td>57</td>
<td></td>
</tr>
<tr>
<td>I. B.</td>
<td>11</td>
<td>0</td>
<td>11</td>
<td>2</td>
<td>11</td>
<td>1</td>
<td>16</td>
<td>3</td>
<td>10</td>
<td>1</td>
<td>66</td>
<td></td>
</tr>
<tr>
<td>M. H.</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>7</td>
<td>2</td>
<td>6</td>
<td>2</td>
<td>32</td>
<td></td>
</tr>
<tr>
<td>P. C.</td>
<td>12</td>
<td>4</td>
<td>10</td>
<td>2</td>
<td>11</td>
<td>2</td>
<td>5</td>
<td>3</td>
<td>11</td>
<td>1</td>
<td>61</td>
<td></td>
</tr>
<tr>
<td>D. S.</td>
<td>11</td>
<td>1</td>
<td>10</td>
<td>2</td>
<td>11</td>
<td>2</td>
<td>9</td>
<td>2</td>
<td>10</td>
<td>2</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>S. A.</td>
<td>9</td>
<td>3</td>
<td>17</td>
<td>1</td>
<td>13</td>
<td>2</td>
<td>11</td>
<td>2</td>
<td>9</td>
<td>3</td>
<td>70</td>
<td></td>
</tr>
<tr>
<td>Ave. R</td>
<td>105</td>
<td>9.9</td>
<td>9.5</td>
<td>9.8</td>
<td>9.2</td>
<td></td>
<td>1.9</td>
<td>1.4</td>
<td>1.3</td>
<td>0.2</td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>Ave. A</td>
<td>2.6</td>
<td>1.9</td>
<td>2.0</td>
<td>2.4</td>
<td>2.1</td>
<td></td>
<td>65</td>
<td>49</td>
<td>7.4</td>
<td>9.1</td>
<td></td>
<td>6.7</td>
</tr>
<tr>
<td>Ave. R. Involuntary</td>
<td>7.7</td>
<td>Ave. A. Involuntary</td>
<td>2.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ave. R. Voluntary</td>
<td>1.1</td>
<td>Ave. A. Voluntary</td>
<td>6.9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Ave. Involuntary - 12.0
Total Ave. Voluntary - 8.1
scored high in all words in the involuntary tests and low in the voluntary tests. These figures show that the effects of volitional factors were consistent for all the given stimulus words. When volitional factors predominated, the associate images likewise predominated; when they did not, the random images greatly outweighed the associate images in number.

From these results it would seem that volitional factors tend to produce a twofold effect. While they direct the search for imagery related to the stimulus, at the same time, they exclude images which are only remotely concerned with the presented word. The directive activity of volition itself operates in such a way as to suppress the many free associations which occur at random under other circumstances.

Volitional factors also seem to make the subjects more conscious of the time element. In Part I, the subjects, in general, made no attempts to perform quickly, nor were they concerned about the amount of time it took for them to report their introspections. In the second part of this test, they became keenly aware of the time which elapsed between their responses. Though the directions did not include any reference to time, the subjects often mentioned their desire to evoke and enumerate the images quickly. The subjects usually became quite concerned if they could report only one or two images successively. All diligently tried to produce the different
images as rapidly as possible, and noticeably rejected other interfering images which came to their minds.

C. Similarities.

Four types of similarities were selected: numbers, words, pictures, and geometric designs. This material was chosen for the purpose of evoking thought processes of a relational nature. Actually, however, the introspective reports in the involuntary tests show that a great deal of free association imagery accompanied the relational thinking. Though the subjects described freely the imagery which occurred, they seemed to be aware that these particular cards contained something more than concrete objects. This "awareness" was completely lacking in the reactions to the sensory material. This factor would seem to indicate that the subjects perceived a difference between the sensory material and the similarities, even though, in most instances, they gained insight and perceived relationships only in the voluntary test on similarities. The following introspections illustrate this "awareness" of the subjects.

Involuntary

**Geometrical designs:** "No. 1 and 2 are in different positions; all look alike. They are angular and look like packages. One is like a mirror. I feel there should be more, but I simply don't know what it could be."
Numbers: "I like to combine numbers; is there any special order here or what? Every 13 years I'm lucky and win something. I won a car and the gas stove in our kitchen. Some of these numbers have a common denominator. I'm coaching some children in arithmetic. I am wondering about that card and what the purpose of it is—there is one but I am afraid I missed it."

Words: "I can see the shavings of wood because I saw the words whittle and wood. Razor and knife remind me of shaving a beard. There is not much that goes with shear. I'm thinking of the time when I used to whittle wood and make daggers. I suppose I could think of all kinds of experiences I've had with these things. I just have a feeling of incompletion; and that if this is all there is to these things there should be more. I feel like something is sort of slipping from me—just as if I just about had something but didn't quite get it. Something else is here, I don't know what."

Similar manifestations were made in thirty-nine other introspective reports on the similarities.

It is interesting to note that, while these subjects expressed their assurance of a missing element, they made no actual effort to find or to look for the missing connection. In the voluntary tests, these same subjects diligently applied themselves in seeking out the most fundamental similarity.
contained in each card. As a result many of them achieved a high "insight score"; while in the involuntary tests, the subjects made no score at all. Does this mean that intellectual insight is entirely dependent on will? Decidedly not. But in our experiments, results seem to indicate that intellectual insight, necessary for the perception of the most fundamental relationships in our similarity tests, was lacking when volitional factors were in the background. The introspections contribute a description of mental operations of the subjects, when reacting to similar stimuli in different situations: first, when volitional factors are in the background; secondly, when volitional factors predominate. It would seem that while intellect is active in both cases, the completion of the task was accomplished only when added effort and motives were operating. Similar instances occur in everyday experience. Moreover, it would seem that in the forming of human character, the power of intellectual processes does not suffice; over and above knowledge, there is the necessity for the exercise of will. Though intellectual capacity is always present and is more or less unchanging, there is a certain dependence of intellect upon will for the achievement of full knowledge. In our tests, the actual selection or the acceptance of a perceived relationship seemed to occur only when volitional factors dominated the picture.
In the similarities, one of the most conspicuous effects of volitional factors was the dispersion of images. Introspections from the involuntary tests contained numerous images, while those from the voluntary tests were often entirely lacking in imagery. When images did occur in the latter tests, the subjects often described them as fleeting or fragmentary; these images also were more intimately connected with the material presented than the images reported in the first tests. Acts of striving, of looking for, of trying, so engrossed the subjects, that, for the most part, images were unable to gain entrance into consciousness. The more volitional factors predominated, the fewer were the conscious images which occurred.

Words

I Involuntary: "There should be some order here. That word should be ship, not boat; navy people say ship. I am imagining myself on a trip to Europe. Horse, track, and train remind me of my Father. He worked for the railroad. There were eight pictures on those other cards, and now there are eight words on each card. I wonder why. I am wondering what the purpose of all this is. The word, sail, reminds me of the trip I want to take. I have images of a ship on the ocean, a big steamship--I can see the deck chains, and now the docks with people thronging around."
Voluntary: "Speech, messenger, mail, telephone are all means of communication. Send and hurry are connected with them, but in a different way. I got that one immediately. I could see it as soon as I tried. I like words better than pictures or figures."

Involuntary: "These all have something to do with drawing. I had a lot of these figures in Art, especially in perspective. I have an image of my teacher, a B.V.M. nun, also the girls. I can see the colored pencils, our easels, and some of the pictures I drew. I have a notion that there is more to these words than I am saying. Maybe I should do more."

Voluntary: "These are all connected; they are implements for eating. Plate, cup, saucer, and bowl are all more alike because they are dishes. I choose these as being most alike because they are all made of the same stuff. I started immediately to look for connections. Rarely do I think of any of these objects in a concrete fashion. I have a desire to do more of these. Have feelings of satisfaction. Just now, the dishes reminded me of our table at home all set."

Four types of similarities were presented to the subjects and each type included three cards. The subjects could achieve a possible score of 3 in each set of analogies if they perceived the correct relationship in each card. Table III
illustrates the differentiations of results under the two sets of directions.

The results seem to show that volitional factors aid in the perception of relationships in the type of similarities we used. The directions in the second part of the experiment proposed a more specific objective than those in the first; the second set of directions incited volitional factors. Since our purpose was precisely to induce greater voluntary effort in the second part, we think that the perception of the relations was, at least in part, attributable to volition. Perfect "insight scores" were not obtained. This might be because, while volitional factors are influential in actualizing the present potentialities, they are powerless to exceed the capacity of a given person. In the involuntary tests, the subjects often made comparisons, gave descriptions of the stimuli, recognized certain values, categorized in a more superficial manner; yet arrived at no specific conclusion. When volitional factors intervened, the comparisons were more defined and of a far more complicated nature. The subjects weighed and balanced the various possible combinations in their quest for the specific relationship contained in each card. The comparisons were always followed by evaluations, a final decision, and choice. While the subjects recognized similarities in the first tests, they made no effort to evaluate them or to make any selection.
Table III

Insight Scores for the Analogies

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Pictures</th>
<th>Words</th>
<th>Numbers</th>
<th>Geometric Designs</th>
</tr>
</thead>
<tbody>
<tr>
<td>K. C.</td>
<td>0 3</td>
<td>0 1</td>
<td>0 1</td>
<td>0 1</td>
</tr>
<tr>
<td>S. R.</td>
<td>0 2</td>
<td>0 3</td>
<td>0 2</td>
<td>0 3</td>
</tr>
<tr>
<td>R. L.</td>
<td>0 3</td>
<td>0 2</td>
<td>0 2</td>
<td>0 1</td>
</tr>
<tr>
<td>A. D.</td>
<td>0 3</td>
<td>0 3</td>
<td>0 2</td>
<td>0 2</td>
</tr>
<tr>
<td>S. L.</td>
<td>0 3</td>
<td>0 2</td>
<td>0 2</td>
<td>0 1</td>
</tr>
<tr>
<td>I. B.</td>
<td>0 2</td>
<td>0 2</td>
<td>0 2</td>
<td>0 1</td>
</tr>
<tr>
<td>M. H.</td>
<td>0 2</td>
<td>0 1</td>
<td>0 1</td>
<td>0 1</td>
</tr>
<tr>
<td>P. C.</td>
<td>0 2</td>
<td>0 2</td>
<td>0 1</td>
<td>0 2</td>
</tr>
<tr>
<td>D. S.</td>
<td>0 2</td>
<td>0 1</td>
<td>0 1</td>
<td>0 1</td>
</tr>
<tr>
<td>S. A.</td>
<td>0 2</td>
<td>0 3</td>
<td>0 2</td>
<td>0 2</td>
</tr>
</tbody>
</table>

These operations were performed only when volitional factors were directing the processes of thought.

Geometrical Designs

Involuntary: "These must be patterns or designs. One of the teachers in our school had some on a bulletin board. These are
all somewhat similar, some more than others. No. 1 and No. 2 are angular. The patterns on the bulletin board are on a black setting. Perhaps there is more to this card than I have noticed."

**Voluntary:** "I have seen figures like these before. I am looking and comparing one with the other. Some of these are like crosses--Nos. 1, 3, and 7. Now I find that 1, 3, 4, 5, and 7--and 8 are alike. But No. 1, 4, 5, and 7 are straightline figures. I haven't a good reason for choosing these, but I'll have to choose them because I can't see anything better. I don't like these figures. I prefer something more concrete. I know I didn't get it, and I have a feeling of incompleteness."

D. Logical Statements.

The results obtained in this part of our experiment are much the same as those described in the section on similarities. When the logical statements were presented with directions asking for general observations, the introspections of the subjects showed that, while judgments were formed and reflected upon, no attempt was made to reach a final conclusion. Imagery and free associations also were numerous in the reports from the first test.
Involuntary

Statement: Some trees never decay
All trees belong to plant life

"All trees decay--this card is wrong because everything living dies. I can see a rotten tree, standing, all twisted, hardly any branches, no twigs, and hollowed out on one side. It looks as if a wind would take it out by the roots. I have images of other trees, too. I wonder why that statement was put that way."

Voluntary

Statement: Some carnations are white
All carnations are flowers

"I guess you would say all flowers are white, but that isn't true. The other two are right. I don't know how that works. Something is funny. The first two are true and what I said is not. All white flowers are carnations--that's worse! But you can't get a true conclusion from that; I'm still trying to find one. I think I could have said--some white carnations are flowers or some flowers are white--that's best. I didn't think of it before."

Involuntary

Statement: All fruits are sweet
Spinach is not sweet

"Spinach is not a fruit to begin with. Tomatoes are fruits
and are not sweet. It is difficult to say 'all', for there is usually an exception. I think spinach is good and I can see some real dark green spinach. I like all fruits; I have a sensation of sweetness, like an apple or orange taste. I'm thinking now that I am not a good reader. I stumbled over those words when I read them, and I can see myself reading aloud in class. I'm wondering if my Mother has any oranges for my breakfast tomorrow. My girlfriend and I used to talk about food all the time."

Voluntary

Statement: All animals have fur
A negro has no fur

"A negro is no animal; therefore a negro has no fur. Is that right? I really don't think all animals have fur, but the conclusion I have is right. I had an image of a negro, but no others. Almost as soon as I looked at the statements, that connection was clear to me. I feel satisfied with my conclusion because I know that it's true anyway."

These introspections seem to show the mutual interdependence of intellectual and volitional factors for the completion of a logical statement. While thinking supplied material for further thought, willing aided in the direction of thought. Deliberations and reflections occurred in both of our
tests, but the actual conclusion was drawn when the subject was told to look for it. St. Thomas has commented on this particular function of will. "It is quite true that it is for the reason to draw the conclusion of a practical syllogism; and it is called a decision or judgment, to be followed by choice. And for this reason the conclusion seems to belong to the act of choice, as to that which results from it."²

However, if the conclusion is perceived immediately upon presentation of the premises, it may be an intellectual insight without any deliberate or formal act of will. It is quite probable that such would often be the case with those well versed in the skill of syllogistic reasoning. On the other hand, persons unacquainted with such techniques seem to require definite volitional acts and stimulation for the completion of reasoning processes.

One of the most noticeable effects of volitional factors upon the subjects' reactions to our propositions was the attempt to evaluate truth and evidence. In the involuntary tests, the subjects were not greatly concerned about the truth or falsity of the statements, though they sometimes offered their opinions on the matter. But in the voluntary tests, the

²The Summa Theologica (ed. Pegis) I-II, xiii, a.1, ad 2 um.
subjects debated back and forth with themselves about the truth of each statement. The activities of deliberation and choice were especially pronounced. Introspections contain reports of tentative acceptance, doubt, indecision, and reexamination, back and forth, several times before the conclusion was actually drawn. Oftentimes, doubts persisted after the conclusion was given, and the subject continued to battle for a more satisfactory conclusion. In this part of our experiment, will factors made the subject more conscious of truth and falsity. Furthermore, whereas in the involuntary tests, the subjects looked upon the statements as more or less isolated sentences, they diligently endeavored to find a relationship between the given statements in the form of a proper conclusion when volitional factors were dominant.

Throughout the entire experiment, certain definite effects of volitional factors were commonly noticeable in all the introspective reports. In the sensory as well as in the rational involuntary tests, manifestations of "strivings", whether conative or volitional, were very few. Imagery was abundant in all the tests requiring general observations only. In the similarities and logical statements, intellectual cognitions as well as imagery were reported frequently by the subjects in the involuntary tests.
The most significant general effect of volitional factors in this experiment was the awareness of self-activity which these factors evoked in the subjects. From time to time throughout the different voluntary tests, the subjects manifested a keen realization of their own strivings. This realization was totally absent in all the introspections given in the involuntary tests. In the latter, our subjects were often aware that they were "missing something" or that they had given incomplete answers; but only in the voluntary tests do they seem to have a cognizance of their own volitional actions. This realization was evident in the tests on sensory material as well as in those requiring rational processes. Throughout the voluntary introspective data, a consciousness of self-activity was reported one hundred and ninety-six different times.

Voluntary Tests

I Shifts on the Grecian Urn.

"Oh! I see two profiles. I had a feeling that I was establishing a rhythm pattern of beats, and I was trying to change it and make it faster. I concentrated on the shifting and had no other images. I guess I was too thoroughly occupied with the shifting. I think one excludes everything else during concentration."
II Word Similarities.

"These are all table utensils. Perhaps some are more closely related. Cup, bowl, saucer, plate are all dishes made out of crockery; so they are more alike. Even when I find a similarity I always try to see if there are other points which make them even more connected. I'm thinking that I'm working hard. One has to be more alert now. The last time you gave me these cards they were easier. I really feel satisfied with my choice this time. I think it is right."

III Picture Similarities.

"I can't find the similarities. These pictures are all about boys. Oh! there are three that represent charity. Now I'm looking to see if there are more. I had no images, but I was conscious of the fact that I was trying and looking. Now I'm wondering if there is any method other than my own to find these things. I think I could do better. I should have said four acts of charity. I remember now that there was another picture in the same category and I missed it. I'm so sorry."

Besides the realization of self activity, the subjects experienced another effect of volitional factors in practically all of the given tests; namely, feelings of satisfaction and dissatisfaction. Accompanying the acts of striving, looking for, and of penetrating the objectivity of words, pictures, or
numbers, were feelings of satisfaction or disappointment. These expressions seemed to be more psychological than physiological, though at times a mixture of the two might have been present. The subjects, intent upon the solution of their problem and the apprehension of a relationship, experienced an intellectual delight when their goal was reached. When the search was abandoned, or when a selection was made because the subject could find nothing better, the introspections were interspersed with expressions of annoyance, keen disappointment, dissatisfaction, and the like. In the involuntary tests, expressions of satisfaction or dissatisfaction rarely occurred; most of those reported were concerned with experiences recalled in free associations and were not precisely related to the task at hand. The following introspections are typical of the responses under the two different circumstances.

Number Similarities

Involuntary: "Good night, numbers! Pinball machines have lots of numbers and you can get a score. I notice that some of these end in 3. These are funny. I have images of red and green lights that flash in those machines and of the colored designs inside the glass. They remind me of my brother, a sailor. I have images of coins; coppers, nickels, and dimes. Thought of a task I have to do--make a phone call."
Have an image of a girl and a phone."

Voluntary: "I don't like these numbers, they are too intangible. It's hard to find the connections because they are so abstract. I am adding some of them and now I'm comparing them, but no luck. It's annoying. 1, 81, and 18 all have an 8 in them. There really must be something else but I simply can't find the real relationship. I had an image of one of my teachers. I feel very dissatisfied and I am still trying to find the answer."

Word Similarities

Involuntary: "Some of these words kind of go together--there are sails on a boat, and you have to row some boats to move them. The boys have a sailboat and they are trying to get money to fix it. I went speedboat riding. Another time I went in a row-boat. The other girl did all the rowing; Jean and I just sunned ourselves. I was afraid to go on the motorcycles at the lake. The bus was so crowded; we should have gone on the train. I still have images of that train."

Number Similarities

Involuntary: "The only thing here that means much to me is 23. My brother is 23. 7 and 9 were in the last card, too. My brother's birthday was a little while back. He graduated in 1943. I can see the auditorium where he graduated,"
the diplomas, and the kids all dressed up. Have images of caps and gowns. We had them, too. We certainly had fun in high school. We were always doing something. I like to add these numbers together."

Voluntary: "The odd numbers predominate, I can see that in a glance; 63, 71, 45, 21. But there must be something else and I'm trying harder now. There! 63, 81, 45, 18, are all divisible by 9. That's it! Oh how good it is to find it. These numbers remind me of some tests we took. I'm so happy that I found it. I have the feeling that I found something which had sort of slipped from me."

Since the involuntary tests included so few manifestations of strivings, the attitude of the subjects seem to be one of passivity or indifference. But when volitional factors were more strongly introduced and the subject was urged to activity, there were always expressions of "trying", "looking", "finding", as well as of satisfaction or dissatisfaction following success or failure, respectively.

The effects of volitional factors were evident in both the sensory and rational processes; but our results indicate that these factors were most effective in regard to the rational material. The differences in these effects were apparent in the number of strivings. (See Table IV). Images were abundant in the involuntary tests on both the sensory and rational
Table IV

Objective Effects of Volitional Factors on Sensory and Rational Processes

<table>
<thead>
<tr>
<th></th>
<th>Involuntary</th>
<th></th>
<th>Voluntary</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sensory</td>
<td>Rational</td>
<td>Sensory</td>
<td>Rational</td>
</tr>
<tr>
<td>Images</td>
<td>678</td>
<td>Images</td>
<td>1182</td>
<td>Images</td>
</tr>
<tr>
<td>Strivings</td>
<td>26</td>
<td>Strivings</td>
<td>47</td>
<td>Strivings</td>
</tr>
</tbody>
</table>

material. However, the change in number, due to volitional factors, was far greater on the rational level than on the sensory. But an even more significant difference is noticeable in the number of strivings. In the tests on both the sensory and the rational material, the directions induced the subjects to engage their volitional powers as much as possible. From our introspective reports, we find that the rational material required a much greater number of volitional acts than the sensory material. As is shown in Table IV, the subjects were engaged in many more acts of "looking for", "trying", "examining", "comparing", etc., when their aim was to perceive and abstract relationship than when they were endeavoring to evoke images. Even in the involuntary tests, when volitional factors were presumably in the background, acts of strivings were more
numerous in the tests on rational materials than in those on sensory perception and imagery.

It would seem, then, that some special exercise of volition is needed or at least helpful in engaging in abstractive and logical thinking. Such is not the case in regard to the use of our sensory faculties. Sensory perception takes place without any special act of will, and random images seem to abound the more in the absence of voluntary effort. Thus, when the subjects were asked to shift the ambiguous figures and to evoke specific images as best they could, volitional factors were induced but were less effective than they were in regard to the rational processes. We might suggest various reasons for this difference. Rational processes require more concentration and more volitional effort than sensory processes. On the other hand, volitional powers can change thought from one object to another more readily than they can control sensory perceptions and imagery. A still more important reason for these differences stems from the very nature of will which, like intellect, is essentially rational. A far more intimate relationship exists between will and the processes of thought than between will and sensory perception. Hence, whenever intellect is at work, will is close at hand and readily cooperates to give finality to the thought processes. In man it is impossible to separate will even from sensory perception; yet
sensory processes because of their different nature are less responsive to the commands of will than the rational processes which partake of the same nature as will itself.

Summary

In general, the factors called into play in the second situation tended to synthesize and to unify the end results of both perception and abstraction. They were influential in clearing away superfluous and interfering mental phenomena, and they directed the cognitive powers in the shortest path towards the attainment of the goal. There was a rejection of objects which were incompatible with the intended aim, and an acceptance of others more in line with the task. Volitional factors gave a species of finality to the activities of other powers by presenting what was sought, and thus put an end to deliberations and diminished random association. Above all, they produced in the subjects a keen awareness of their own self-activity. Before the second instructions were given, the subjects remained passive and were content to relate the spontaneous impressions to one another and to objects from their previous individual experiences. Volitional factors changed the mental picture decidedly--from one of passivity to one of striving and of repeated and persistent efforts and desires.
It is not our purpose to overemphasize the influence of volitional factors on the processes of perception and abstraction. Since our aim was to study volitional effects in particular, we have endeavored, primarily, to describe the activities of volitional factors as they occurred in our experiment and to interpret the results obtained from them. No attempt is made here to generalize upon the findings we have recorded. The introspections, however, have clearly revealed that, in regard to our particular subjects, volitional factors wield much influence in the process of abstracting relationships and in sensory perception as well. The cognitive faculties, spurred on by the orectic power of will, are enabled to work more rapidly and to exercise their own potentialities to a fuller and richer degree.

Our contribution, then, consists chiefly in the presentation of objective data: namely, responses and introspective descriptions which show the positive influence of volitional factors upon sensory perception and intellectual abstraction. The objective data revealed both an increase in frequency of correct responses and a significant difference in the qualitative results when the subjects were induced to work with special voluntary efforts.
APPENDIX

The primary purpose of our experiment was to observe and describe the qualitative effects of volitional factors by means of introspective reports. However, it is interesting to note, that the quantitative data, obtained from correlations between the scores from the various tests, present a more complete picture of these effects. Owing to the small sample used in the experiment, the results cannot do more than indicate a trend. No claim is made for predictive value in these findings.

The Rank Difference method was used and correlations were computed as follows: (1) between the average scores obtained in the voluntary analogy tests and those from voluntary shifts in ambiguous figures; (2) between average scores from the voluntary shifts of ambiguous figures and average scores from the voluntary tests on images; (3) between average scores from the voluntary similarities and the average scores from the voluntary tests on images; (4) between average scores on voluntary "associate" images and those from the voluntary similarities. Since many of the involuntary scores in the tests on
both rational and sensory material were zero, we were unable to use them in the correlations. Table V shows the average scores from each of the tests used in the comparisons as well as the coefficient of each correlation and the probable error.

The fairly high positive correlation between the two sets of scores obtained from the sensory tests indicates that those subjects who have a high rate of voluntary shift on ambiguous figures tend to have facility in producing images voluntarily. A person, then, who can shift his perceptions rapidly should be able to produce images easily. Since these abilities are closely related and both on the sensory level, it is quite probable that these results constitute a representative sample.

The low positive but unreliable correlation between voluntary shift of ambiguous figures and voluntary perception of similarities shows that little relationship exists between these two abilities. While a person may have great facility in voluntarily shifting ambiguous figures, he may encounter difficulties in the perception of abstract relationships. Skill in perceiving sensory material, therefore, while it is an extrinsic aid, does not necessarily give us an index of the individual's intellectual ability. This particular finding is in close agreement with the Thomistic principle which states that intellect is only extrinsically dependent upon the senses. Certainly, one who is able voluntarily to shift his perceptions
### Table V

**Average Scores and Correlations**

#### Average Scores

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Voluntary Similarities</th>
<th>Vol. Shifts on Voluntary Vol.</th>
<th>Voluntary Images</th>
<th>&quot;Associate&quot; Images</th>
</tr>
</thead>
<tbody>
<tr>
<td>K. C.</td>
<td>1.50</td>
<td>34</td>
<td>7.8</td>
<td>6.6</td>
</tr>
<tr>
<td>S. R.</td>
<td>2.50</td>
<td>37</td>
<td>10.2</td>
<td>8.6</td>
</tr>
<tr>
<td>R. L.</td>
<td>2.00</td>
<td>29</td>
<td>11.2</td>
<td>9.8</td>
</tr>
<tr>
<td>A. D.</td>
<td>2.50</td>
<td>19</td>
<td>7.2</td>
<td>6.4</td>
</tr>
<tr>
<td>S. L.</td>
<td>2.00</td>
<td>16</td>
<td>6.4</td>
<td>6.0</td>
</tr>
<tr>
<td>I. B.</td>
<td>1.75</td>
<td>54</td>
<td>7.6</td>
<td>6.4</td>
</tr>
<tr>
<td>M. H.</td>
<td>1.25</td>
<td>30</td>
<td>7.2</td>
<td>5.6</td>
</tr>
<tr>
<td>P. C.</td>
<td>1.75</td>
<td>16</td>
<td>7.2</td>
<td>5.8</td>
</tr>
<tr>
<td>D. S.</td>
<td>1.25</td>
<td>13</td>
<td>6.0</td>
<td>5.2</td>
</tr>
<tr>
<td>S. A.</td>
<td>2.25</td>
<td>37</td>
<td>10.0</td>
<td>9.4</td>
</tr>
</tbody>
</table>

#### Correlations

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Vol. Shifts on Vol. Shifts on Vol. Shifts on</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ambiguous Figures Ambiguous Figures Ambiguous Figures</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Correlation</td>
<td>.20</td>
<td>.74</td>
<td>.37</td>
<td>.67</td>
</tr>
<tr>
<td>P. E.</td>
<td>-.21</td>
<td>-.10</td>
<td>-.19</td>
<td>-.12</td>
</tr>
</tbody>
</table>
rapidly is not necessarily one who perceives intellectual relationships easily, since these two operations are performed by two essentially different faculties.

A like result is found in the correlation between voluntary similarities and voluntary production of images. Here, our findings are somewhat contradictory to those from other types of tests. It is often supposed that free associations which contain numerous images are indicative of high intelligence. Our results do not lead to this conclusion. Subjects who voluntarily evoked a large number of images were not always able to achieve a high insight score in the similarity tests.

Another somewhat illuminating result was obtained from the correlation between voluntary similarities and voluntary "associate" images. In this case, the correlation was positive and reliable; the correlation between voluntary similarities and voluntary random images was only a low positive one. This comparison seems to indicate that the ability to evoke "associate" images differs somewhat from the ability to produce images at random, i.e., images of no particular class. Is it possible that the production of "associate" images requires more than the exercise of sensory faculties only? Since the subjects had to depend, to a certain extent at least, on their facility of recall, it is quite probable that this test contained an admixture of sensory and intellectual operations, but
with the sensory predominating. Certainly, the task was more
difficult when the subjects were required to evoke a specific
type of image than when they were free to report all and any
images which occurred. Thus, the facility to evoke, volun-
tarily, "associate" images is more closely related to voluntary
perception of relationships than is the ability to shift per-
ceptions rapidly or to produce images at random. The more
specific the task, the more likely will there be a relationship
with and dependency on the higher thought processes.

Thus these correlation coefficients (See Table V) present a
pattern of gradations from a low positive to a fairly high
positive relationship. This pattern bears out the basic prin-
ciples already established in Thomistic psychology. While
sensory abilities are interrelated to a fairly high degree, the
same is not true when we are comparing sensory capacities with
rational capacities. The latter two are interdependent in an
extrinsic manner; but sensory skills give little light, if any,
on the intellectual abilities of the same individual.¹

¹Cf. Charles Spearman, Psychology Down the Ages. London:
BIBLIOGRAPHY

Books

Ach, Narziss. "Über die Willenstätigkeit und das Denken."
Gottingen: Vandenhoeck and Ruprecht, 1905.

- - - - "Über den Willensakt und das Temperament."

Allers, Rudolph. "Intellectual Cognition" in Essays in Thomism,
edited by Robert E. Brennan. New York: Sheed and Ward,
1942.

Angell, James Rowland. Psychology: An Introductory Study of
the Structure and Function of Human Consciousness. New

- - - - An Introduction to Psychology. New

Aquinas, St. Thomas. The Summa Contra Gentiles, Book II.
Translated by English Dominican Fathers from the latest
Brothers, 1923.

- - - - Opera Camplectens Quæstiones Disputatas,

- - - - Ordinis Praedicatorum Opera Omnia,
Tom. IX, Quæstiones Disputatae De Veritate. Parmæ:
Typis Petri Fiaccodori, 1859.

- - - - Ordinis Praedicatorum Opera Omnia,
Tom. VIII, Quæstiones Disputatae De Malo. Parmæ: Typis
Petri Fiaccodori, 1859.


--- The Origin of the Knowledge of Right and Wrong. Translated from the German by Cecil Hague. Westminster: Archibald Constable and Company Ltd., 1902.


Duns Scotus, Johannes. Quaestiones Quatuor Voluminum Scripti Oxoniensis. Super Sententias & Quodlibeta, Tomus IV.


---


---


---


Lattey, Cuthbert. *St. Thomas Aquinas*. Papers from the Summer School of Catholic Studies held at Cambridge August 4-9, 1924. Cambridge: W. Heffer and Sons Ltd., 1924.


- - - - - *Outline of Psychology*. New York: Charles Scribner's Sons, 1923.


- - - - - *Dynamic Psychology*. Chicago and Philadelphia: J. B. Lippincott Company, 1924.


---


---


- - - - - Psychology Down the Ages. 2 Volumes. London: Macmillan and Company, Ltd., 1937.

- - - - - The Nature of Intelligence and the Principles of Cognition. London: Macmillan and Company, Ltd., 1927.


- - - - - The Groundwork of Psychology. New York: Hinds, Noble, and Eldridge Publishers, 1903.

- - - - - Mind and Matter. Cambridge, England: The University Press, 1931.


---


---


---


---


---


**Periodicals**


---


APPROVAL SHEET

The dissertation submitted by Sister Marian Dolores Robins, S.H.N. has been read and approved by five members of the Department of Psychology.

The final copies have been examined by the director of the dissertation and the signature which appears below verifies the fact that any necessary changes have been incorporated, and that the thesis is now given final approval with reference to content, form, and mechanical accuracy.

The dissertation is therefore accepted in partial fulfillment of the requirements for the Degree of Doctor of Philosophy.

June 17, 1947
Date

Vincent O. Herrigel
Signature of Adviser