there is to know about numerical reasoning and representation. Nonetheless, it is somewhat unsatisfying that there are no precursors to understanding of the counting and reasoning principles; the principles seem to emerge full-blown, only requiring practice in execution and extension to a wider range of situations. The few change mechanisms that are proposed—practice, improved motoric coordination, and memorization of the list of numbers—are far less intriguing than the authors' descriptions of children's existing knowledge. In addition, no particular evidence is produced to support the claim that any of the proposed change mechanisms are important in the development of counting and numerical reasoning. Gelman and Gallistel are not alone in this shortcoming; information-processing, Piagetian, and other existing approaches all seem to have more difficulty characterizing change than steady states. Still, it is disappointing that their most interesting hypothesis about what develops, a progression from a numerical to an algebraic stage, concerns phenomena totally outside the range of their experiments.

In summation, Gelman and Gallistel's approach is an innovative one. It represents a plausible alternative to both the Piagetian and the information-processing approaches to studying development. I think that the authors err in attributing too much competence to young children. I am not convinced that analyzing development in terms of understood principles will prove fruitful, and I regret the paucity of change mechanisms in the approach. Nonetheless, they have succeeded in their goals of demonstrating that preschoolers know more than most of us think they do and in underscoring that there is more to cognition than is captured in most contemporary real-time models.

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the truth is, I write by ear, always with difficulty and seldom with any exact notion of what is taking place under the hood.

—E. B. White

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New Vodka in an Old Bottle

A. R. Luria


Reviewed by Michael Cole

A. R. Luria was, until his death in August 1977, Professor of Psychology and Head of the Department of Neuropsychology at Moscow University. He earned the Soviet equivalent of a PhD from Kazan University and an MD from Moscow Medical Institute. Luria was a member of the Soviet Academy of Pedagogical Sciences and a foreign member of the National Academy of Sciences of the United States, the American Academy of Arts and Sciences, and the American Academy of Education. His more than 300 scientific works include Higher Cortical Functions in Man, The Working Brain, Basic Problems of Neurolinguistics, Cognitive Development, The Neuropsychology of Memory, and Neuropsychology of Language and Speech (translation in preparation). The book under review was translated from the Russian and edited by W. Horley Gantt.

Michael Cole is Professor of Psychology and Coordinator of the Communications Program at the University of California, San Diego. A PhD of Indiana University, he did postdoctoral research in Moscow with Luria. Cole was previously Professor of Ethnographic Psychology and Experimental Anthropology at Rockefeller University. He is a current CP Advisory Editor. Cole is editor of Selected Writings of A. R. Luria and coeditor of Handbook of Contemporary Psychology with I. Maltzman, The Autobiography of A. R. Luria (in press) with S. Cole, and L. Vygotsky's Mind in Society (with V. John-Steiner, S. Scribner, and E. Souberman).

In the very early 1920s, Alexander Luria was a junior researcher in the Institute for the Scientific Study of Labor in his native Kazan, where he was also a graduate student on the social science faculty and part-time student in the medical school. While still an undergraduate, he had conceived of a grand scheme for creating a unified science of humanity. Luria's new science of psychology would encompass the complex, idiosyncratic, emotion-laden features of people as described by the great novelists and philosophers of the 19th century, and yet permit rigorous specification of elementary physiological processes, linked to human physical nature, which could explain the phenomena we all recognize as Human Nature. The intellectual ambition of the enterprise was matched only by the energy of the man who conceived it.

In 1923, K. M. Kornilov was appointed Director of the Institute of Psychology in Moscow on the strength of his promise to create a Marxist psychology based on materialist principles

Prof. Cole's review of The Nature of Human Conflicts continues the series of specially invited retrospective reviews of seminal books that CP is publishing in 1979 in honor of the centennial celebration of the establishment of Wundt's laboratory.
and objective methods. His major experimental tool was a device that measured the strength of a motor response in addition to its latency. When he received a copy of a new journal from Kazan, entitled *The Psychophysiology of Work and Reflexology*, with reports of studies combining both verbal and motor responses in a reaction-time experiment, Kornilov thought he recognized a kindred spirit; Luria moved to Moscow where he would remain for the rest of his life (with the exception of the period when Moscow was under attack by the German armed forces).

The *Nature of Human Conflicts* is a summary of Luria's research beginning with his arrival in Moscow and extending to 1930. It was submitted for his doktorat, a degree that has no parallel in American academic life. In the Soviet Union, the doktorat is hypothetically reserved for mature scholars who have demonstrated mastery over a large field of knowledge. It is intended to summarize that work in an integrative monograph. Skinner's *The Behavior of Organisms* or Hebb's *The Organization of Behavior* would probably qualify for such a degree; the most influential Soviet example of a doctoral thesis that gained prominence in the United States was E. N. Sokolov's *Perception and Conditioned Reflexes*.

Luria's dissertation was remarkable at the time it was written and remains a document of great interest for contemporary psychology. Yet it is by no means an intellectually accessible book; quite the opposite. Many circumstances of its production render it difficult and in places opaque, disguising the views of its author as well as the broad significance of his methods and substantive achievements.

These difficulties have many sources, of which two are paramount: First, there were dramatic changes within Soviet science and society during the period (1923–1929) in which the work summarized was carried out, sometimes leading Luria to give a distorted description of the goals of particular studies; second, there were changes in the scope of Luria's own work during this period which led to marked changes in his interpretation of the research. His synthesis of the early and later states of the work (separated by his meeting with L. S. Vygotsky and the subsequent reorganization of his theoretical perspective) was in progress at the time the book was written, and the exposition often shows the strain of incompletely formulated positions.

A generally accepted history of Soviet psychology in the 1920s has so far eluded historians of science, although major public documents make it clear that it was a period of great creativity and exploration. Competition for the power to define the terms on which psychological research would be conducted was fierce, and the acrimoniousness of the accompanying debates is rarely found in American scientific discussions that might appear to be of similar scientific and social importance. (Perhaps the closest parallel that springs to mind is the vilification of Watson in which his personal behavior and ideas on child rearing were linked with his methodological views concerning the study of behavior.)

In the USSR, it was (and still is) difficult to maintain a distinction between government policy, the philosophical presuppositions that justify the policy, and social programs that flow from policy and scientific work. Serious discussions among Soviet psychologists about the nature of a Marxist psychology began in 1923. Kornilov staked his claim as the spokesperson for a new, Marxist psychology built upon the principle that mind is a reflection of dynamically organized matter that could be studied objectively using the techniques that he had developed. At almost the same time, Luria suggested that psychoanalysis provided a promising approach to the study of behavior within a materialist, Marxist framework. It is important to an interpretation of *The Nature of Human Conflicts* that Luria viewed the basic techniques described in this book as a way of extending and objectifying basic ideas arising from psychoanalytic theory.

In one of his articles on psychoanalysis ("Psychoanalysis as a System of Monistic Psychology," 1924; translated in *The Selected Writings of A. R. Luria* edited by Michael Cole, 1978), Luria summed up his views on psychoanalysis and Marxism as follows:

1. Dialectical materialism requires one "to study objectively . . . the true relationships among perceivable events; and this means to study them not abstractly, but just as they are in reality, to study them in such a way that the knowledge we acquire will help us later to exert an active influence on them" (p. 8).

2. "For Marxism, the only possible point of view is that the world is one, that it is a single system of material processes, and that the mental life of human beings is only one of its many aspects" (p. 8). This view leads to the conclusion that human beings must be explained by phenomena in the world outside themselves.

3. The dialectical aspect of dialectical materialism was interpreted by Luria to mean that phenomena must be studied dynamically in the process of changing; "further, the interacting influence of man on his environment and the environment on man must always be kept in view" (pp. 9–10).

Luria traces parallels between these ideas and assertions to be found in the major psychoanalytic thinkers of the first quarter of this century. He concludes that psychoanalysis succeeded in meeting the requirements of a Marxist psychology on the first two points, but failed on the third. He promised to deal with the problem of social influences on mind in later work—a promise he did not keep within the confines of his discussion of 1925, but a promise that occupied him constantly in later years.

By the time he wrote *The Nature of Human Conflicts*, neither Kornilov's reactology nor psychoanalysis was considered an acceptable viewpoint. Kornilov is barely mentioned in the book, and psychoanalysis as a system is not discussed. Rather, the ideas of Freud, Jung, and other scientists associated with psychoanalysis are mentioned in narrow contexts associated with particular experimental techniques.

Not all of these changes should be viewed as externally imposed. Once Luria began working in collaboration with Vygotsky, his own theoretical
framework changed. He began to place a much stronger emphasis on tracing the social antecedents of behavior. This shift is reflected within the book. The first two sections are devoted to the role of drives and emotions in the organization of adult behavior, while the last section is devoted to the development of organized behavior. In this last section of the book, we are introduced to new experimental paradigms that are rather loosely connected to work reported in earlier sections. These new methods formed the experimental basis for what came to be known as the socio-historical approach to the study of human psychological functions. This approach, too, was under heavy attack at the time Luria wrote *The Nature of Human Conflicts*.

The cross-cutting controversies in which Luria was embroiled produced a strange anomaly. While his dissertation earned him a doktorat, it was not acceptable for publication. This book has never been published in the Soviet Union, and the various studies that it summarizes are virtually unobtainable from Soviet libraries. The obituary of Luria published by the *Bulletin of Moscow University* does not list it among his publications. Only the English version, parts of which were heavily edited by Horsley Gantt in his translation, remains an accessible record of experiments that it summarized.

**Viewed against this rather extensive background, I will now turn to the substance of Luria's book, seeking those observations and ideas that continue to have relevance for psychological science.**

First, it is important to note that this book contains an alternative title and subtitle, which jointly serve as a key to the book's content. *The Nature of Human Conflicts* was a title dreamed up by the publisher and reluctantly agreed to by Luria. The alternative title, *Emotion, Conflict and Will*, labels the traditional psychological categories to which the book pertains, and shows clearly Luria's concern with classical topics of psychoanalysis. The subtitle, *An Objective Study of Disorganisation and Control of Human Behaviour*, refers to the major methodological strategy that Luria employed to attack his subject matter; this reformulation of the problem of will forms a central thread of his research from 1920–1977.

Luria begins his discussion with a review of basic conceptions of the organization of human behavior extant in 1930. Referring in the opening pages to the work of Lashley and Pavlov, he sides with Lashley in his belief that the organization of the nervous system cannot be explained by the mechanical combination of elementary processes of inhibition and excitation (while fully accepting the existence and importance of these basic neural processes): "The structure of the organism presupposes not an accidental mosaic, but a complex organization of separate systems . . . (which) unite as very definite parts (of) an integrated functional structure" (p. 6).

Recognizing that it is very difficult to analyze the working of a well-organized system, Luria decided that the most promising approach to discovering the underlying principles of behavioral organization was to study disruptions in the working of the system. So, he set out to study the disorganization of behavior. He acknowledges the precedence of others in following this route, but he is unhappy with the way they went about their task: "All attempts to study the structure of the affective disorganization of behavior without considering the alteration of the behavior itself appear to us wide of the mark" (p. 17). He was objecting to physiological reductionism.

**In the place of physiological indicators of emotion, Luria sought and found behavioral indicators. He was very clear about the properties that his observational system should possess.**

We should on the one hand . . . produce the central process of the disorganization of behavior; on the other hand, we should try to reflect this process in some system accessible and suitable for examination. The motor function is such a systematic, objectively reflected structure of the neurodynamic processes concealed from immediate examination. And there lies before us the use of the motor function as a system of reflected structure of hidden psychological processes. Thus we proceed along the path which we call the combined motor method. (p. 18)

The combination Luria sought was one that included two activities, the first reflecting a central ("hidden") process, the second a motor ("visible") process. For the central component, he used the method of word associations, drawing on Jung's *Diagnostic Associationstudien*. However, early in his career, he had experimented with free associations as a measure of underlying motives and conflicts and he concluded that he needed to know more than the content and latency of verbal associates if the processes that controlled them were to become more than an enigma. For the motor component, he used a reaction-time apparatus in which the subject had only to make a movement in response to stimuli. Used by itself, this method was also inadequate as an indicator of complex mental or motivational states. But the two techniques in combination "stimulate in our subject two systems of activity which are connected with each other so closely that they are set in motion by two simultaneously occurring activities of one and the same process" (p. 23). Disruptions in the motor response associated with verbal stimuli became the key data concerning the structure of the hidden, central processes.

Luria's technique is neatly illustrated by the responses of a man known to have murdered his fiancée shortly before Luria interviewed him. At the time of testing, Luria knew that during the murder the subject had been cut on his hand, which he had wrapped in a towel. Luria presented him with two verbal stimuli to which the man had to respond with the first word that came to mind. The stimuli were "book" and "towel" to which the subject responded "white" and "cloth" respectively. The latencies of the two verbal responses were virtually identical and there was certainly no evidence of special effect or conflict in the content of the responses. But the motor responses to the two stimuli differed significantly in shape and latency. The response to "book" was shorter and fuller than the response to "towel," leading Luria to conclude that.
the structure of the motor response points
to two clashes of the reactive process, from
which only one, the latter, was expressed
in the speech response, the first being in-
hibited in the speech but revealed only in
the motor reaction. (p. 30)

With this basic method in hand, Luria
set out to demonstrate both the validity
of the assumptions on which it was
based and the substantive contributions
to the study of psychological processes
which applications of the technique
could provide. In pursuing the validity
issue, Luria constructed laboratory tasks.
In one such task, subjects were read
stories, one of which they were in-
structed to keep secret from the experi-
menter. They were then interrogated
using the combined motor method to
determine the story they had been in-
structed not to reveal. Borrowing ex-
plitly from Kurt Lewin, whose work
he greatly admired, Luria constructed
a number of tasks based upon induced
failure, experimental sets, or instructions
that required subjects to respond from
a limited set of permissible alternatives
under circumstances where their first
tendency would be to violate the instruc-
tional constraints.

In a series of applications of the
method, he investigated various patho-
logical states that could be expected
to induce conflict (his earliest studies of
aphasia were conducted as part of an
analysis of patients suffering from so-
called semantic aphasia who, according
to Luria, were placed in conflict as they
searched for the meanings of words),
or in which conflict should not be
reflected in motor behavior (cases of
pathologically reduced emotional states).
From the very beginning, Luria viewed
variations in the organization of human
behavior as a treasure trove of data
about basic behavioral mechanisms, and
the book is filled with interesting ex-
amples of his comparative approach;
children, mental patients, the mentally
retarded, the criminal, and the alcoholic
were all important resources for analysis
as well as important subjects for study
in their own right.

From the many ideas underlying the
detailed studies, I think that Luria’s
concept of the role of experimentation
deserves special mention. It is easy to
be seduced by the inherent interest in
his experimental materials, thereby for-
getting his very specific motives for in-
cluding them. Criminal cases, aphasia,
neuroses, and hypnotic states all hold
their own fascination for us. But for
Luria, these states were always clearly
means to his overall theoretical goals.
In an era when the relevance of psycho-
logical experimentation is under renewed
scrutiny from friends and foes alike,
Luria’s clear views concerning the ad-
vantages and shortcomings of experi-
ments on complex psychological states
are especially informative.

For Luria, the combined motor method
represented a model system, and he was
unusually clear about the implications
of the term.

On the positive side:
The ideal for the psychological experimen-
ter has become the possibility to reconstruc-
turally the phenomenon under examina-
tion, because only this allows one to keep
it entirely under control. The psychologist’s
ideal became a method by which it would
be possible to produce in a laboratory a
model of the phenomenon analysed. (p.
129)

This strategy had its difficulties and
its shortcomings. The experimental crea-
tion of affective states too often in-
volved stimuli that, while acutely un-
pleasant, did not serve as appropriate
models of affective states in everyday
life. He adapted a number of proce-
dures from Kurt Lewin, whose impor-
tance he repeatedly emphasized, as a
means of gaining verisimilitude in his
experiments. Still, he was usually cau-
tious about generalizing his results. His
reasons for using hypnosis grew directly
out of these concerns. He
decided to follow the course of artificially
creating some affective complexes or rather
their short-term models, feelings which
provoke a natural emotional reaction of
the person under test, and leave conspicu-
ous traces for a certain period of time.
We had to create feelings of important in-
tensiveness and stability, and for that end
we used hypnosis. (p. 130)

The one area of research where his
cautions about generalizations from ex-
periments seemed to leave him was when
he began applying the combined motor
method to young children. This work
began in a systematic way in the later
half of the 1920s and was a major pre-
occupation at the time The Nature of
Human Conflicts was written. Those in-
terested in Luria’s developmental re-
search, especially his studies of the role
of speech in the development of self-
directed behavior, will find the last
third of this monograph especially in-
teresting. In it, Luria formulates a num-er of hypotheses using the combined
motor method that became the backbone
of his research in the late 1940s and
early 1950s, when he was preoccupied
with the problem of mental retardation,
and shifts in Soviet psychology had pro-
duced a very Pavlovian flavor in his
theorizing. In this section, he formulates
the concept of the functional barrier,
a term that refers to a hypothetical
central mechanism enabling the subject
to delay responding initiated by some
external stimulus. Luria believed that
the capacity for delay represents the
primitive mechanisms underlying self-
control or (in classical terminology)
will. It was an important idea that has
still not received the attention it de-
serves. Unfortunately, his developmental
research using the combined motor
method began using the laboratory tech-
niques he had evolved for other pur-
poses, not observations of real-life be-
havior of young children. As a con-
sequence, the later part of The Nature of
Human Conflicts contains some serious
overgeneralizations about young chil-
dren’s inexperience. It was not until the
late 1960s and early 1970s that he
started to develop experimental models
based on real-life situations.

These flaws serve only to highlight
Luria’s extraordinary grasp of the prob-
lems he set out to solve. He was 28
years old when he completed the manu-
script of this book. In 1929, at the end
of an era of research, he saw before him
the outlines of a new set of problems
which he struggled, with limited success,
to describe as he set out to explore
them in the 1930s and succeeding dec-
ades. Serious study of The Nature of
Human Conflicts was described by an
early reviewer as “a sort of hand-to-
hand combat with every page, to be

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constructed line by line. But if you battle through to the end, your headache will clear into genuine enlightenment” (Stolberg, *B. New York Evening Post*, September 24, 1932, p. 7). I couldn’t agree more.

People Predominantly Prevail Under Stress

Stanley J. Rachman


Reviewed by Ted L. Rosenthal

Stanley J. Rachman is Professor of Abnormal Psychology at the University of London’s Institute of Psychiatry, where he earned his PhD. Rachman has been a CASBS Fellow and is Editor of Behaviour Research and Therapy. He is author of The Effects of Psychotherapy and coauthor of Psychology and Medicine with C. Philips.

Ted L. Rosenthal is Distinguished Professor of Psychology at Memphis State University, where he was previously Director of Clinical Training. A PhD of Stanford University, he was also Professor at the University of Arizona. Rosenthal is coauthor of Social Learning and Cognition with B. J. Zimmerman.

What is fear? How is it acquired, how maintained or resisted, and how overcome? Those are the central topics discussed in Rachman’s new book, a major expansion and rethinking of an earlier volume (*The Meanings of Fear*, published in Britain, 1974). Rather than reaching firm conclusions, he examines the evidence and logic supporting a number of views, and the respective problems that face those alternative, provisional strategies of explanation. His most definite and striking conclusion is that all traditional conceptions have magnified human vulnerability to develop and maintain fears—a gloomy overstatement which prompted the current reanalysis.

Of special interest is his attention to courageous conduct and the sociopsychological material compiled on that topic. He has patiently culled anecdotal field, and survey research from many sources that are often inaccessible (e.g., limited circulation government reports) or neglected (e.g., Stouffer’s classic multivolume series *The American Soldier*) but jointly document the bravery of civilians and military personnel facing the stresses of warfare. This evidence makes interesting reading and, in sum, it suggests that most psychological theories—especially those drawing heavily on research with infraprimates—have greatly exaggerated the likelihood that people will acquire fears or cease effective coping even under highly stressful conditions (e.g., the London blitz, the bombing of Hiroshima).

From this data perspective, he analyzes the shortcomings in a position he once favored—the classical (Mower’s two-factor) theory of traumatic conditioning and its progeny—as a paradigm for how people acquire and lose fears. For example, conditioning views are strained because, when facing such intense threats as air raids, urban people who often endured bombing developed less fear than rural dwellers, who were attacked much less often. He considers the merits and shortcomings of other approaches as well (e.g., explanations based on habituation, extinction, and reciprocal inhibition), and proposes an expanded conception in light of Bandura’s and Seligman’s views on the role of clients’ phenomenology—especially their self-perceived ability to exercise control and take meaningful action in threatening situations. This is a working draft of a theory, rather than a polished system. Sketches are offered toward, and potential experiments bearing on, a possible new synthesis. Indeed, readers might welcome more elaboration, even if just added illustrations, hypothetical examples, or frank conjectures were supplied to enrich the schematic framework. But it provides some provocative, testable hypotheses and an opportunity for readers to share in the process of scientific reasoning. It will have heuristic value for graduate students seeking thesis topics. Yet undergraduate majors and lay readers can sample the flavor of theory construction in progress, before its final glazes are applied.

Historically, it is fascinating to see a scholar—long identified with neo-Hullian thought applied to clinical phenomena—moving to embrace learning from the symbolic provision of information (e.g., by verbal instructions and modeling demonstrations). Sharp disputes continue about which mechanisms underlie the rise and fall of fear, and even about which response variables (overt approach or physiological or subjective report measures) best define its existence. Yet current theories are, perhaps, evolving toward closer convergence because of newer shared concerns with the part information plays in creating and reducing fears. In that light, Rachman’s stance is relatively middle of the road. He can identify and endorse the merits of cognitive and peripheralistic views, without joining either camp. Thus, a comparative overview of the main spectrum of competing approaches to fear is provided in brief but lucid form. His concern with theory is refreshingly open to ideas less popular than the brands most in vogue: The possibility that biological factors predispose people to fear some cues but not others (Seligman’s “preparedness” theory) is treated in depth. It is also refreshing when writers conclude their former views are faulty and must be