This Week's Citation Classic

Galin D. Implications for psychiatry of left and right cerebral specialization.
(Langley Porter Neuropsychiatric Institute, University of California, and Institute for
the Study of Human Consciousness, San Francisco, CA)

The cognitive specialization of the hemispheres and
the symptoms that follow their disconnection are
reviewed. The hypothesis is proposed that in normal
intact people, mental events in the right hemisphere
can become disconnected functionally from the left
hemisphere (by inhibition of neuronal transmission
across the cerebral commissures) and can continue
with a life of their own. This hypothesis suggests a
neurophysiological mechanism for at least some in-
stances of repression and an anatomical locus for the
unconscious mental contents. A variety of opportuni-
ties for research were discussed. (The SCI® and the
SSC® indicate that this paper has been cited in
more than 300 publications.)

Getting Yourself Together; Hemispheric
Autonomy and/or Integration
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Why has interest in lateral specialization grown
so enormously? It followed on the studies of com-
missurotomoy (split-brain) patients by Roger Sperry
and his colleagues, beginning in the 1960s. Literally
hundreds of studies have been published, but we
can abstract from them two fundamental observa-
tions: first, that the two hemispheres in humans are
specialized for different cognitive functions; and
second, that when they are surgically separated,
each hemisphere is capable of sustaining an inde-
pendent, autonomous consciousness—two minds in
one body. It is the latter fact that has captured the
interest and imagination of scientists and the public,
because it echoes the themes of duality in human nature, of inner conflict, of
division against himself.

The main reason my paper has been so successful
is that I proposed that the split brain was not just
another metaphor; there is something deeper,
something literal for us here.

Nevertheless, despite fascination with mental du-
ality in the split brain, the vast bulk of research has
focused on the specialization, not the duality. Inves-
tigators have sought to characterize the specializa-
tions, to test which hemisphere can do this or that
task best, to seek differences in the amount of spe-
cialization in various groups (sex, handedness, vo-
cations, personalities), etc. Only a few focused on
the duality and the potential for hemispheric auton-
omy and interaction. J. E. Bogen, one of the neu-
surgeons who operated on these patients, has
consistently and eloquently recalled attention to
these aspects for more than two decades and has
most influenced my thinking along these lines.

Another reason that this paper had a wide impact
was that I was not simply neurologizing psychiatric
concepts; rather, I was developing a larger frame-
work for integrating the psychological and psycho-
logical. Therefore it could appeal to a wide audi-
ce from both disciplines and their near neighbors.

Within this structure we could consider phenomena
not usually brought together: dissociative experi-
ence, electroshock treatment, somatic expression of
unconscious ideas, coping strategies and affective
reactions, and primary process thinking. This the-
etorical paper was followed up with several empiri-
cal studies.

There has been notable progress in three areas
recently that could support theoretical extension
and further empirical grounding of my earlier work.

First, the development of magnetic resonance imag-
ing (MRI) has made it possible to get in vivo anat-
omicl measurements of the corpus callosum for
correlation with behavioral and experiential vari-
able. Second, sophistication in EEGs and ERP's, and
the development of metalimaging imaging such as
PET, makes it possible to measure the degree of
participation of both cortical and subcortical re-
gions in each hemisphere in relation to mental pro-
cesses. The third development is more conceptual
than technological. There has been a convergence
of neurobiology, psychology, and computer science,
focused passionately (pro and con) around the ideas
of parallel distributed processing. Whether it is a
new paradigm or simply a unifying metaphor, it
promoted the development of a common lan-
guage and concepts among these disciplines, and
that has been very productive. It has already led to
a much greater interest in systems as a whole and
the interaction of their parts, rather than simply in
the parts per se.

My present project, a broad theoretical considera-
tion of "wholeness" in people, is a direct continua-
tion of the earlier ideas. Many other disciplines have
tackled this topic, usually under the rubric of "Self.
I am adding the perspectives of neurobiology and
cognitive psychology.

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commisurotomoy intact. (Trevethen C, ed.)
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