The recesses of the mind

So at the present time I seem to be thinking rationally again in the style that is characteristic of scientists. However this is not entirely a matter of joy as if someone returned from physical disability to good physical health. One aspect of this is that rationality of thought imposes a limit on a person’s concept of his relation to the cosmos.

—John Nash
Autobiographical Essay
Le Prix Nobel, 1994

The Oscars are to Hollywood and films, what the Nobel prizes are to science. There are, of course, more Oscars; even awards for the best supporting actors and actresses, costume designers, screenplay writers and music directors, unlike in science where the major prizes go to the big stars, with the supporting cast generally forgotten. This year’s Oscar ceremonies were especially significant for Indians, who, by and large, were rooting for Lagaan and Aamir Khan. As the interminable Oscar show on TV dragged on, I was struck by the number of times the movie, A Beautiful Mind was mentioned in various categories. A few weeks later, I accidentally ran into a prominent Indian sportsman, who on hearing that I was a scientist immediately asked: ‘Have you seen the lovely movie, A Beautiful Mind?’ By this time I knew that this was a movie about a scientist. A few days later I acquired a copy of Sylvia Nasar’s book A Beautiful Mind. And, it is this book which has since occupied my thoughts.

Nasar chronicles the life and times of John Nash, the mathematician who received the Nobel prize (or more correctly, the Nobel Memorial Prize, instituted by the Bank of Sweden) for Economics in 1994. Until the prize, Nash was a forgotten genius; but the call from Sweden catalysed not only Nasar’s remarkable biography, but also the Hollywood movie. The Princeton University Press, undoubtedy driven by the surge of public interest, has produced The Essential John Nash, edited by Harold Kuhn and Sylvia Nasar. The story of Nash’s life is riveting; a compelling mix of madness and pure creativity. It is the story of genius trapped in the mists and shadows of schizophrenia. It is the story of a deeply troubled man, who laid the foundations of game theory, developing concepts that have had a far-reaching impact on disciplines as diverse as economics and evolutionary biology.

Nash did his remarkable work as a graduate student in the Department of Mathematics at Princeton University, in a spectacular creative burst in 1949–50. His first paper appears to have developed from an undergraduate course in international trade, that he took at Carnegie Tech in 1948, ‘simply to fulfill degree requirements’. His analysis of ‘The Bargaining Problem’ may not have excited pure mathematicians, but it signalled the beginning of a new approach to economic analysis. It also heralded the arrival of an original thinker, with an ability to make the intuitive leaps, which separate men of genius from others. Soon after, Nash laid the cornerstone of modern game theory, when he defined the concept of an equilibrium, which would eventually bear his name. Today, the Nash equilibrium is an idea which influences not only the applications of the theory of games in economics, but its imprint has extended to the idea of an ‘evolutionarily stable strategy’ in biology. Nash’s seminal work led to an extraordinarily slim Ph D dissertation of only twenty-seven pages. Unaware of the impact that his work would eventually have, Nash himself seemed untouched by success in pointing towards strategies for solving practical problems; he appeared more consumed by the need to prove himself as a ‘pure mathematician’. It is in the years after his extraordinary period as a graduate student at Princeton that the first signs of the tragedy that was to follow became evident. Nasar’s biography paints a haunting picture of his period at the RAND Corporation, a symbol of the collective paranoia of the early years of the Cold War. Nash’s period on the faculty of MIT marked his major success as a ‘pure mathematician’ in attacking the ‘embedding problem’ in differential geometry. It also marked, as his biographer notes, the beginning of his ‘slide from eccentricity to madness’. Only thirty when he experienced the first crippling episode of paranoid schizophrenia, Nash’s academic career lay ruined. From 1959 to 1970 Nash led a tortured existence and from the 1970s until the Nobel prize, Nash was a ‘phantom’ who haunted the campus of Princeton University. Nasar’s
description of the Swedish Academy’s deliberations, before
deciding to honour a man, who had stepped past the
borders of rationality, makes gripping reading. There is
also a poignant episode. In a move, unprecedented in the
Nobel awards process, one of Nash’s colleagues at
Princeton is forewarned, to prepare both the recipient and
his surroundings for the inevitable glare of publicity
that follows the prize. In Nash’s case in the years that
followed, every detail of his tortured years becomes a
matter of public record in Nasar’s, at times, brutal but
riveting biography.

But more than anything else the story of John Nash, is
the story of a disease; an illness of the mind that is
estimated to affect a staggering one per cent of the
world’s population—schizophrenia. The term itself was
coined by Eugen Bleuler in 1908 and for long has been
associated in popular perception, with a ‘split personal-
ity’. Rather, it is a deep-rooted disorder of the brain,
which profoundly affects behavioural patterns. Schizo-
phrenics may have difficulty in distinguishing real from
unreal experiences, be gripped by delusions and some-
times incapable of normal emotional responses. As a
crippling disease of the mind, the spread of schizophrenia
over the past century has been frightening. The evolution
of the disease, in history, is shrouded in mystery; its
recognition and management using anti-psychotic drugs
is of relatively recent origin. The efficacies of treatment
regimens are still a matter of serious debate. In the not
too distant past, as in the case of Nash, psychotherapy,
insulin and electric shock treatment have been advanced
as palliatives, although their efficacy remains uncertain.
The first major signs of the disease appear in young
adulthood, apparently spontaneously, with limited corre-
lation to heredity or environment. The symptoms are
disparate. A general consensus that seems to be emerging
is that the best course of management may be a
combination of anti-psychotic drugs and a supportive
environment. Nash’s dramatic improvement in the years
immediately preceding the Nobel prize may have been
facilitated by the ‘structured, predictable and supportive’
environment provided by his wife, the familiar sur-
roundings of Princeton and the company of sympathetic
mathematicians. In current approaches to the manage-
ment of the illness, family support has acquired a major
role.

The 1990s were declared the ‘decade of the brain’. But,
the decade has long since faded into history. Despite
the enormous progress of neuroscience over the past
several years and the increasing power of new methods
for probing brain function, functional magnetic resonance
imaging (FMRI) among them, disorders of the brain
remain among the most poorly understood of the illnesses
that affect man. The case of schizophrenia clearly indi-
cates that neither genes nor environment, nature nor
nurture, can be entirely held to be the sole causative
agents of the disease. Like many other poorly understood
disorders of the brain, which remain lumped together as
mental illnesses, in the case of schizophrenia too,
management of the disease may be more accessible than
a cure.

The story of John Nash raises many questions about
creativity and the mind. In her prologue to her biography
of Nash, Sylvia Nasar notes: ‘Many great scientists and
philosophers ... have had similar strange and solitary
personalities. An emotionally detached, inward looking
temperament can be especially suited to scientific creati-
ity.’ She notes that exercise of a creative mind may also
provide a defence ‘against anxiety stimulated by conflict-


ding demands for detachment and human contact’. Nasar
recalls Wordsworth’s famous lines:

I was taught to feel, perhaps too much
The self-sufficing power of solitude.

Indeed, it was Wordsworth who spoke of ‘that inward
eye which is the bliss of solitude’.

In reflecting on creativity, Nasar notes that ‘men of
scientific genius, however eccentric, rarely become truly
insane—the strongest evidence for the potentially protec-
tive nature of creativity’. But on reading A Beautiful
Mind I came away with a feeling that schizophrenia is an
affliction that may defy our understanding for some time
to come. Its victims will often continue to be ‘incom-
prehensible and inaccessible’ to those around them.
While modern science may bring to bear its most
powerful weapons to probe the brain, the secrets of the
mind may be very hard to prise out. The wellsprings of
creativity emerge from the deepest recesses of our minds;
but for some of the most gifted amongst us, so too do the
demons which haunt the mind.

P. Balaram