tions regarding any quantum system. Thus, physical reality as described in quantum physics is said to be fundamentally indeterminate, or incompletely definable.

Although the phenomenon of wave/particle duality demonstrated that the experiencer somehow shapes or affects the experiential reality, it wasn't known just how the experiencer actually determines the nature and behavior of the experiential reality. Once again, we know *what* happens, but we don't really know *why* or *how* it happens, because we're unaware of the underlying framework of reality from which that happening extends.

Using the relational-matrix model of reality, we'll now describe how experience is formed by explaining why and how wave/particle duality and the uncertainty principle come to exist. After demonstrating the means by which experience is created, we'll then be in a position to discuss why there exists an awareness of experience.

Section 2 The Introduction of the Unexperienced/Experiential-Reality Duality

Wave/particle duality makes unavoidable the notion that a distinction must be made between reality as it exists in the absence of experience (unexperienced reality) and reality as we experience it to exist (experiential reality). Before quantum physics, there was no such distinction in physical theory because both realities were assumed to be equivalent.

How is it that wave/particle duality revealed a dichotomy between unexperienced and experiential reality? By demonstrating that the experiencer was a necessary part of any experiential reality. Therefore, if we assume that there exists any reality in the absence of experience, independent of experience, then the discovery that what we experience as reality depends on how it's being experienced means that what we experience as reality is somehow experiencer dependent, not experiencer independent. Therefore, we must distinguish between *reality as it exists in the absence of experience*, which is experiencer independent, and *reality as we experience it to exist*, which is experiencer dependent.

When it was discovered that the state of a quantum system changed with the method of observation—i.e., behaving like either a wave or a particle, depending on the experimental setup—it was no longer possible to speak of the observed reality as separate from the observer, or of the experiential reality as independent of the experiencer. Not only did the temporal state of a material object exist relative to the experiencer,

as in relativistic physics, but the nature and behavior of the experiential reality itself was dependent on the experiencer and thus existed as such only in relation to the experiencer. Here, then, in the quantum realm at least, it was impossible to accurately speak of an "objective" reality that existed as such, separate and independent of experience. Therefore, a distinction had to be made between reality as it exists in the absence of experience and reality as we experience it to exist.

Before this unexperienced/experiential-reality duality was recognized, it was assumed in the classical and relativistic views of the universe that reality simply revealed itself to us. It was understood that we had to be present to see what was being revealed, but other than that, our observation played no part in what we saw. However, with the discovery of wave/particle duality, not only did we need to be present to see what was being revealed, but our presence itself was partly responsible for what we saw.

In the classical view of the universe, nature was the artist, and our observation was simply the lifting of the veil to reveal the work of art. In the quantum view of the universe, nature is still the artist, but we as the observer are an inseparable part of that nature and so too are partly the artist and thus partly responsible for what lies under the veil. As has been said of the quantum view of the universe, we're both observer and participant. When the veil is removed, we're an active participant in what's seen to exist, not just a passive observer. What's experienced as reality, i.e., the experiential reality, is in some way directly related to the experiencer.

Before the discovery of wave/particle duality, it was assumed that science was somehow able to eliminate the observer's "subjective" influence, leaving us with a view of the universe unaffected by the presence of the observer, and thus a view of the universe that was equivalent to reality as it exists in the absence of experience. No longer could this situation be assumed to be the case in the light of wave/particle duality.

In quantum experimentation, it became clear that the instruments of observation themselves were serving to shape or affect what was being observed, and that this inseparability of the observer and the observed reality couldn't be overcome by any means. The instruments were not imposing subjectivity, since they were consistent in their influence; yet, at the same time, the resulting observation couldn't be separated from the observer, and so what was being observed couldn't be said to exist independent of, or in the absence of, the act of observation.

Since the influence of the observer couldn't be eliminated from the observation, physicists could no longer maintain the position that what they were observing was a reality which was equivalent to unobserved

reality, or reality as it exists in the absence of observation. Once the observer was understood to be influencing what was being observed as the experiential reality, physicists could no longer assume that the experiential process had no effect upon the nature and behavior of the experiential reality, since the method of observation clearly influenced the state of existence of what was being observed.

In our normal sensory experience, what we see is what we get, and so we assume that what we get is what's actually there. Now, in quantum reality, what we see is still what we get, but what we get depends on how we see, depends on the way we look, and so we can no longer assume that what we get is what's actually there. Therefore, we must acknowledge that there may be important differences between reality as it exists in the absence of experience and reality as we experience it to exist.

In this way, the discovery of wave/particle duality has forced upon us the notion that there are at least two levels of reality which can be said to exist: One is *the experiential level of reality*, or reality as it exists in relation to an experiencer; and the other is *unexperienced reality*, or reality as it exists in the absence of an experiencer.

Unexperienced reality, or reality as it exists in the absence of experience, is also, then, reality as it exists before or beyond experience. Unexperienced reality is by its nature undefinable. However, this doesn't mean that there's nothing we can say about unexperienced reality. *Because unexperienced reality is reality as it exists before or beyond experience, it must form the basis of the experiential level of reality.* Therefore, unexperienced reality must be somehow related both to the experiential reality and to the experiencer. We'll now use the existence of that relationship to examine the nature of unexperienced reality in order to establish the foundation for a description of how experience itself is created.

Section 3 The Nature of Unexperienced Reality—Two Possibilities

If we accept that there's some fundamental difference between reality as it exists in the absence of experience and reality as we experience it to exist, we can then infer that the experiential process which intervenes between the two must impose some change upon unexperienced reality in converting it into the experiential level of reality.

unexperienced reality $\longrightarrow$ experiential process $\longrightarrow$ experiential level of reality