RELIGION & PHILOSOPHY

were at the root of Eichmann's behavior.

In this three-part article, left in manuscript form at the time of her death in 1976, Arendt writes that Eichmann's "deeds were monstrous, but [he] . . . was quite ordinary, commonplace, and neither monstrous nor demonic." Not any kind of willfullness but a profound *thoughtlessness*—an utter unreflectiveness—made the proper operation of his conscience impossible.

Arendt suspects that wickedness, however defined, is "*not* a necessary condition for evildoing." Instead, she argues, our "faculty for telling right from wrong" is connected with our "faculty of thought." Arendt follows Plato in viewing the thought process as a "soundless dialogue" that each person carries on with himself—a private activity demanding withdrawal from the world. The distinguishing mark of this inner conversation, she maintains, is consistency. A criminal like Eichmann who is unfamiliar with this silent intercourse (in which we examine what we say and what we do) does not mind contradicting himself—"nor will he mind committing any crime, since he can count on its being forgotten the next moment."

SCIENCE & TECHNOLOGY

The Changing Face of Flu

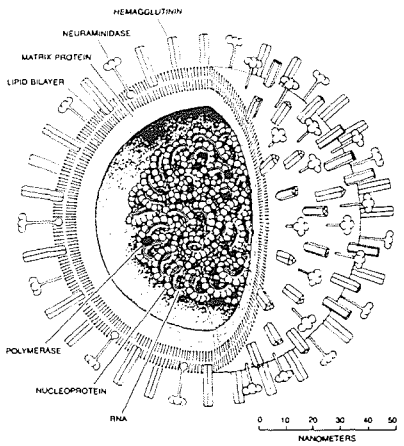
"The Epidemiology of Influenza" by Martin M. Kaplan and Robert G. Webster, in *Scientific American* (Dec. 1977), 415 Madison Ave., New York, N.Y. 10017.

Influenza was reported by Hippocrates in Greece as early as 412 B.C. In 1918–19, it reached pandemic proportions in Europe, Asia, and America, killing 20 to 40 million people. Until recently, however, little was known about the disease.

The influenza virus was isolated in pigs during the 1920s, in humans a decade later. Subsequently, the influenza A virus, the only type that causes pandemics in man, was found in several species of lower animals. But the origin of these periodic pandemic strains (as opposed to relatively localized viruses) remains a mystery. Kaplan and Webster, research scientists with the Pugwash Conference and the World Health Organization, respectively, suggest two possible sources: (1) genetic recombination of human strains with lethal animal viruses and (2) transmission of virulent animal strains directly to man.

The RNA—ribonucleic acid containing genetic information—of the influenza virus is included in the virion (see illustration) as eight separate, single segments, thus easing rearrangement with influenza strains from horses, pigs, and ducks. Such recombination, the authors write, is of "key importance" in accounting for the "drift" and "shift" of influenza viruses. Drift refers to a naturally occurring mutation of the virus. Shift means a dramatic mutation caused by genetic recombina-

After infection by an influenza virion (right), the body forms antibodies to prevent the hemagglutinin spike from combining with red blood cells. But rearrangement of the RNA, or genetic information (red), can change the composition of the hemagglutinin, rendering antibodies ineffective and permitting reinfection.



Reprinted, with permission, from Scientific American.

tion. Since the influenza virus is continually changing, the human body's resistance to one strain may not be effective in resisting a deviant strain appearing months later.

The authors' conclusions: A "successful" flu vaccine will have to be continually updated; and influenza remains a "continuing and evidently ineradicable threat to man."

The Heresy of Science

"The Heresy of Science: A Twelfth Century Conceptual Revolution" by Tina Stiefel, in *ISIS* (Sept. 1977), 156 Fifth Ave., New York, N.Y. 10010.

Early in the 12th century, a small group of Western European intellectuals—including Adelard of Bath, Thierry of Chartres, John of Salisbury, and Peter Abelard—struggled to define natural science as a distinct and separate discipline. These proto-scientists or "cosmologists" (they called themselves *physici*) boasted a respect for empiricism (derived from Arab science) and confidence in the power of reason (gleaned from the study of Aristotelian logic). In retrospect, their work may represent the first gropings toward modern science in the West.

Stiefel, a historian at Pace University, has pieced together the *physici*'s program from arguments scattered, or deliberately buried, in their writings. "There is nothing in nature without *ratio*," explained Adelard of Bath. The Creator was not merely all-knowing but supremely rational, as Plato had proclaimed in the *Timaeus*; nature must therefore be "purposeful, logical," and subject to the probings of reason. Adelard and others advocated basing hypotheses on careful observation, formulating data in mathematical terms, and deducing illustrative models. More provocatively, they suggested that systematic doubt was the beginning of scientific wisdom. "By doubting we come to inquiry," wrote Peter Abelard, "by enquiring we perceive the truth."