

Geneticists and the IQ issue

How much of human intelligence is inherited and how much is acquired through interactions with the environment? Social scientists, psychologists and even one physicist have devoted an inordinate amount of time and energy to this question, and so far have failed to come up with a satisfactory answer. If anyone ever does answer the question, it is likely that it will be the geneticists, but last month at the annual meeting of the Genetics Society of America a statement was issued saying that the possibility of a genetic difference in intelligence between races is still an open question.

Three years ago at an international meeting, geneticists drafted a statement strongly condemning the ideas put forward by educational psychologist Arthur Jensen. In 1968, he had set off a bitter public and scientific debate by claiming that the reason blacks average lower IQ test scores than whites was due to genetic differences in intelligence. Not all the geneticists, however, agreed with the strong anti-Jensen statement, so an *ad hoc* committee was formed, headed by Elizabeth S. Russell, now president of the society. The committee's revised statement avoids the Jensen issue but says, "In our views, there is no convincing evidence as to whether there is or is not an appreciable genetic difference in intelligence between races."

Research has not yet determined the relative importance of heredity and environment in influencing intelligence, the statement says, but this type of research, although complicated and open to bias, should not be discouraged.

Refiguring the population

While both the birth rate and the death rate in the United States are lower than the government has been reporting, both the population growth rate and the U.S. population are much higher than generally believed, according to Robert Cook, population consultant to the Environmental Fund. The reason, explains Cook, is that the population of the United States is substantially larger than the official figure reported by the Bureau of the Census and that this is why the birth and death rates are too high. The official population at mid-year was 215.7 million. But this figure does not include the undercount of 5.3 million announced several years ago, nor does it consider the entry of illegal aliens since the undercount was determined. The actual population, according to the Environmental Fund, is more than 222 million. In determining birth and death rates, the Bureau of Vital Statistics uses the lower figure, which produces birth and death rates slightly higher than they actually are. The Fund has also refigured the world population and found the Bureau of the Census figures to be too low. The official figure is 4.069 billion. The revised figure is 4.240 billion.

The asthma personality

Although asthma is one of the diseases long recognized as having a psychosomatic component, scientists are only slowly unraveling precisely what psychological and behavioral factors set the stage for the disease.

Two important factors that have emerged from past studies are that twice as many boys as girls have asthma and that the disease has its origin in child-parent interactions. Now a study reported in the August *ANNALS OF ALLERGY* suggests that asthmatic children are more dependent on their mothers than are nonasthmatic children yet are reluctant to admit it; that the mothers of asthmatic children tend to be less educated and have more negative moods than the mothers of nonasthmatics, and that the mothers of asthmatics also had mothers who overprotected them.

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No apparent expansion of the earth

A number of theories of cosmology require that Newton's universal gravitational constant be not constant but a variable that slowly decreases as the universe ages. Thomas C. Van Flandern of the U.S. Naval Observatory has made studies of the moon's motion over the last 20 years that convince him that this is so. If the constant decreases, the strength of gravitational forces decreases. One consequence of this would be a gradual expansion of the earth as its selfgravitation weakened.

It is highly desirable to find independent evidence for such an expansion because its possible consequences are important. For one example, it could explain the observed seafloor spreading and continental drift. In the Aug. 19 *NATURE*, J. van Diggelen of the University of Utrecht in the Netherlands points out that study of the growth marks on ancient corals is one way. Expansion of the earth would increase the rate at which the earth's rotation slows down and increase the gradual change in the length of the day. The length of the day at the time the corals were growing can be found from their growth marks.

Various groups of paleontologists have published studies of coral growth going as far back as the Cambrian (520 million years ago) in one case and the Middle Devonian (380 million years ago) in another. Applying their data to the physics of the earth-moon system van Diggelen finds no evidence for the additional change in the earth's rotation: "The conclusion seems inevitable that . . . the earth has not expanded much during the past 500 million years."

Neutrinos and supernovas: Caveat

The latest theories of particle physics have led some astrophysicists to propose that neutrinos trigger supernova explosions in stars. The scenario goes like this: As the star collapses under its own gravitation, atomic nuclei capture electrons and create neutrinos. The neutrinos carry away much of the energy of the gravitational collapse to the outer layers of the star and deposit it there in such a way as to cause the outer layers to explode.

Consideration of an important point in neutrino physics leads T. J. Mazurek of the University of Texas at Austin to warn that things might not be so easy. Neutrinos are subject to the Pauli exclusion principle, which says that no two of them with exactly the same set of properties can be in the same place at the same time. For the collapsing-star case, this limits the number of neutrinos of different energy that can be involved in the action. Enough neutrinos may not get through to the outer layers to make the explosion go. Whether they do or not depends on bringing a number of other details of neutrinos' physical and chemical effects into the picture, he concludes (*ASTROPHYSICAL JOURNAL*, 207:L87).

More neutron-wave effects

In recent months we have reported a number of instances of quasi-optical behavior of beams of neutrons (SN: 4/24/76, p. 268; 8/14/75, p. 105). Such behavior is expected by a basic tenet of quantum physics, the wave-particle duality, which says a beam of particles can behave like a train of waves. The newest such behavior by a neutron beam involves interference between beams reflected from parallel planes. When a light beam hits a sheet of glass, part is reflected from the front, part from the back. The wave from the back has its phase shifted and so interferes with the one from the front. The same thing happens to a neutron beam reflected from the two sides of a thin film of cobalt-iron alloy, report J. B. Hayter of the Institut Laue-Langevin in France and J. Penfield and W. G. Williams of the Rutherford Laboratory in England, in the Aug. 12 *NATURE*.

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