

Reevaluation of the origin of races

In his book *The Origin of Races* (1962), Carleton S. Coon argued that the Caucasoid or White race crossed the threshold from *Homo erectus* to *Homo sapiens* at least 250,000 years ago. The Congoid or Negro race, he said, remained at the *Homo erectus* level until perhaps as recent as 40,000 years ago. Richard G. Klein of the University of Chicago now disputes Coon's theory. Klein says the dating of the skulls on which Coon partly based his argument "is almost certainly incorrect."

Coon's evidence came from four skulls, two European and two African. The European specimens, representing the White race, were the well-known Swanscombe and Steinheim skulls. They are recognized as among the earliest with brains large enough to qualify as *Homo sapiens*. The African specimens, representing the Black race, were the Broken Hill and Saldanha skulls. Known collectively as Rhodesian man, they are considered by some anthropologists to be the African version of the Neanderthal type.

Klein does not argue specifically with the typing of the skulls, but in the Aug. 3 *NATURE* he presents "recent evidence that these specimens are in fact far older" than the 40,000 years assigned to them. The specimen discovered in 1921 in Broken Hill, Northern Rhodesia (now Kabwe, Zambia), was

found with a collection of Early Stone Age artifacts. Early Stone Age artifacts were also associated with the Saldanha skull when it was found in 1953 northeast of Saldanha Bay, South Africa. The radiocarbon dates available at the time suggested that 40,000 years was a good date for the type of tools found with the African skulls. But Klein says a recent reevaluation of the radiocarbon chronology of the southern African Stone Age indicates that the end of the Early Stone Age probably lies beyond the limits of the carbon-14 technique. If so, the African skulls need to be redated by other methods.

Klein says recent geological evidence places the Early Stone Age as far back as the Middle Pleistocene—more than 100,000 years. Evidence from animal bones associated with the skulls takes this date back even further. The bones are very similar to fauna found in two beds at Olduvai. Firm dates from the Olduvai beds have not been published but a combination of paleomagnetic evidence and sedimentation rates has produced a tentative date between 700,000 and 300,000 years ago.

The precise age of the skulls is uncertain, Klein admits, but he says the artifactual and faunal evidence suggests they are more than 125,000 years old. "It is clear," he concludes, "that they are much further back on the *Homo erectus-Homo sapiens* continuum than Coon thought, and certainly do not constitute good evidence for a very late persistence of *Homo erectus* in sub-Saharan Africa." □

An 'improved' corn may retard growth

One of the Green Revolution's greatest successes has been to improve the protein content of corn (SN: 7/21/73, p. 42). One particular corn strain—the opaque-2-mutant—now contains all of the amino acids that people need in their diets. It is being used to improve the health of peoples in developing countries. In Colombia, children with the protein-deficiency disease kwashiorkor recovered on diets of the improved corn.

But the improved corn may have a drawback that rules out its being the sole source of food for children. In studies of healthy adult volunteers, two investigators at Boston City Hospital have found that a diet based exclusively on the corn decreases the secretion of growth hormone. The researchers, Thomas J. Merimee and S. Edwin Fineberg, attribute the decrease in growth hormone to the corn's high content of carbohydrate. They found that diets that were lower in carbohydrate content and equal or lower in total calories than the improved corn diet did not suppress growth hormone secretion.

Might children whose diet is largely composed of the corn also experience a decrease in growth hormone? No one knows. "Nor does anyone know if ultimate linear growth with this diet will be normal or abnormal," Fineberg told *SCIENCE NEWS*. Some investigators are now attempting to get these answers by conducting a study of children in Brazil. If the improved corn does turn out to have an adverse effect on growth, the corn can still be used to improve the health of children in developing countries, says Fineberg. But the children should also eat some other foods that are very low in carbohydrate, to counter the high carbohydrate in the opaque-2-mutant. □

Emergency medicine: Veto may face override

Protesting that funding emergency medical service (EMS) is fundamentally a local matter, President Nixon last week vetoed the Emergency Medical Services Act of 1973, which would provide broad Federal assistance to communities trying to improve care.

Backed by the American Medical Association and almost every other major health organization in the country, the bill had passed by a unanimous vote of the Senate and by a 3 to 1 margin in the House. An angry Senate quickly overrode the veto and House leaders confidently predicted they could also muster the necessary

From dust to planetesimals

Astronomers think they understand how the cooling gas in the early solar nebula condensed to form dust grains and later how the larger planets were formed from collisions of objects several miles in diameters (planetesimals). But how the planetesimals themselves formed from the dust has been a puzzle.

Now Peter Goldreich and William R. Ward of the California Institute of Technology think they have the answer. In the Aug. 1 *ASTROPHYSICAL JOURNAL* they propose that the planetesimals were formed from gravitational collapse.

The scenario goes like this: The original solid particles condensing from the gas formed a thin, plate-like disk of debris orbiting the sun. Then the combined gravitational attraction of countless numbers of these grains broke up the disk to form separate clusters. Each cluster was composed of bits of debris all attracting one another. As the space between the grains continued to shrink, portions of the cluster collapsed in on themselves to form larger objects. These would form planetesimals about a half mile in diameter. "It took only one to ten years to produce bodies of this size," says Goldreich.

Clusters containing 10,000 of these larger bodies continued to rotate around themselves in a delicately balanced equilibrium, prevented from contracting to form one object by the strength of their rotational patterns. As the planetesimals interacted with the hydrogen gas in the nebula, however, their angular momentum was slowed and they also began to contract upon themselves. It would take several thousand years to form the larger planetesimals five miles in diameter from the one-half-mile-diameter bodies.

Once this large the planetesimals could then grow by direct encounter into planets.

two-thirds affirmative vote after Congressmen returned from vacation meetings with their constituents.

The act would provide grants for training rescue personnel, developing centralized EMS communication networks, purchasing emergency vehicles, providing facilities for follow-up care and teaching the public about first aid. Two-year grants for establishment of new EMS systems would require 75 percent local funding by the second year and self-sufficiency after that. Grants for improving existing EMS systems would require 50 percent local funding from the outset.

The Administration had requested \$15 million to finish seven regional EMS demonstration projects. Instead, Congress authorized \$185 million, spread over three years, to help communities throughout the country establish their own EMS systems. In his veto message, the President asserted that the proper Federal role was establishment of a few demonstration projects that other communities could use as models. The congressionally authorized funds, he said, were "far in excess of the amounts that can be prudently spent," and local communities should be free to spend their funds for "local purposes of higher priority."

In his 1972 State of the Union message, President Nixon spoke of the "sad and staggering" loss due to accidents in this country and later proposed a "new Federal Partnership with the private sector" to help combat the loss with improved EMS systems, beginning with the seven so-called "model systems."

The loss is indeed "sad and staggering." Some 20 percent of accidental fatalities and 30 percent of heart attack deaths could be prevented by prompt, efficient emergency medical care. Perhaps 60,000 lives could be saved every year by raising the American EMS standards to that of several other developed nations.

The EMS situation now—in the words of one knowledgeable Congressional aide—is a "horror show." Less than two-fifths of all ambulances meet minimum design standards and only five percent of ambulance drivers have passed the minimum training course established by the Department of Health, Education and Welfare. By the Ambulance Association of America's own estimate, 25,000 people are permanently injured or disabled each year by untrained ambulance attendants and rescue workers. Emergency rooms are overcrowded, recommended communications networks linking various emergency services exist in only a handful of communities and only half the needed number of physician emergency medicine specialists are practicing.

SCIENCE NEWS has learned that the initial draft of the President's veto

message originated in the HEW office of Undersecretary Frank C. Carlucci, who sent it with a memo to Roy C. Ash, director of OMB, setting out further objections to the EMS act. A new agency set up by the bill to administer EMS development would "erect new barriers to efficient and effective organization of the Department," he told Ash. The money authorizations "promise a level of Federal funding for such development that cannot be met."

The Administration also objected to inclusion in the act of a rider to keep seven Public Health Service hospitals open—a measure hastily included when Congress learned of HEW intentions to close the facilities.

Congress and the Administration apparently agree that the EMS crisis is not a matter of developing new technology to save lives, but rather a matter of coordinating and improving existing facilities. Most important is the concept of regionalism, with major hospitals in a given region sharing responsibility for treating various types of injuries (one hospital taking burns, another head injuries). Such a system requires a sophisticated network of radio communications and highly trained workers at every level. Where the legislative and executive branches part company is over the question of to what degree local initiative needs to be supplemented with Federal funds. Even if an override should succeed, Carlucci's memo would seem to portend im-

Europe finally establishes a space agency

After years of haggling, Europe is finally getting together in space. Last week, ministers from 11 Eastern European countries reached an agreement to merge the existing European Space Research Organization (ESRO) and the European Launcher Development Organization (ELDO) into a new NASA-type space agency (SN: 1/13/73, p. 25). The final signing of the agreement is now being delayed by Italy which has to reevaluate its position due to a recent change in its government. The new organization will be called the European Space Agency.

The agreement includes three major joint projects. The countries will scrap the unsuccessful Europa launch vehicle in favor of development of the French launcher, the L-3S. The nations also agreed to develop a space laboratory, sometimes called the sortie lab, which will be placed into earth orbit in the cargo bay of the space shuttle, now being built by NASA. This laboratory would take scientists from the European countries as well as from the United States into space for several weeks of research (SN: 1/27/73, p. 54).

The decision to build the space-laboratory, which is considered an



University of Maryland
Infant in portable incubator is rushed from copter to hospital in University of Maryland's emergency care project.

pounded funds and interagency friction.

Local initiative will certainly be needed to relieve the nation's EMS shortcomings, but local resources are limited, which helps explain why 70 percent of deaths from motor vehicle accidents occur in rural areas and communities under 2,500 population. Upon the outcome of the current debate may depend the lives of 60,000 Americans every year. □

integral part of the shuttle program, will mean a commitment of about \$300 million by the Europeans. Since 1969, NASA has been encouraging the European nations to work with the United States in just such a project. Joint scientific efforts not only tend to ease political tensions, but also eliminate costly duplications of efforts. The lab will be built in Europe by European money. But requirements and the final design of the laboratory will require close contact with the U.S. aerospace industries now working on the shuttle.

The third major project agreed upon by the European nations concerns the launching of a series of British communications satellites for ship-to-shore transmissions over water routes between Europe and the Persian Gulf.

Each of the 11 nations—Belgium, Denmark, France, West Germany, the Netherlands, Spain, Switzerland, Britain, Italy, Norway and Sweden—will contribute specified amounts to the \$870 million program.

Any agreements between member nations and non-member nations, such as the various French-Soviet joint projects, will not come under the jurisdiction of the new agency. □