

BIOMEDICINE

Why the prostate enlarges

Many older men suffer from enlargement of the prostate gland, which then leads to lack of bladder control, increased urinary frequency and urgency, prolonged retention of urine or other symptoms of urethral obstruction. Why does the prostate enlarge? Medical scientists weren't sure. But now the cause, at least in dogs, has been found: It is an accumulation of dihydrotestosterone, the breakdown product of the male hormone testosterone. This finding was reported by Jean D. Wilson and colleagues of the University of Texas Health Science Center at the recent annual meeting of the American Federation for Clinical Research in Washington.

Although surgery can correct an enlarged prostate, some older men are poor candidates and thus could profit from new therapy for the condition. The Dallas researchers are exploring therapeutic avenues based on their finding about the cause. One approach would be to inhibit the conversion of testosterone to dihydrotestosterone and thus prevent prostate enlargement without decreasing testosterone. Another would be to regulate cell receptors for dihydrotestosterone in the prostate.

America's sexually active teenagers

The United States' current teen pregnancy epidemic (SN: 5/6/78, p. 299) is not so surprising in view of a report recently issued by the House of Representatives' Select Committee on Population. The report states that one-fifth of 13- and 14-year-old Americans have had sexual intercourse, and that fewer than one-third of America's sexually active teenagers regularly use contraceptives.

T cells and bone marrow transplants

One of the more interesting immunologic findings of the past several years is that a major kind of immune cell known as the T cell comes in three varieties. "Killer" T cells kill tumors and other enemies of the body, "helper" T cells aid killer T cells, and "suppressor" T cells moderate the action of the killer T cells (SN: 4/29/78, p. 278).

Even more provocative, suppressor T cells appear to play a role in certain autoimmune diseases, notably lupus erythematosus and juvenile rheumatoid arthritis (SN: 11/18/78, p. 342). And now, according to a report in the May 10 *NEW ENGLAND JOURNAL OF MEDICINE*, suppressor T cells may be responsible for certain cases of graft-versus-host disease in bone-marrow transplant recipients. This is a condition where implanted bone marrow, which is immunologic tissue, rejects the patient's body as something foreign; it can lead to death unless it is brought under control.

Ellis L. Reinherz of the Sidney Farber Cancer Institute in Boston and his colleagues have found that patients with acute graft-versus-host disease lack suppressor T cells, and the reappearance of such cells stops the disease. In contrast, patients with more chronic graft-versus-host disease may lack suppressor T's or have too many of them. Thus certain cases of graft-versus-host disease may be due to a deficiency or imbalance of suppressor T cells in a patient's body.

Cockroach allergy

As if cockroaches don't already inflict humans with enough psychological woe, they can also impose physical distress in the form of allergies. The antigenic material from cockroaches may be as important as the mite in so-called "house dust" allergy cases, Kansas City, Mo., allergists Arnaldo Capriles Hulett and Robert J. Dockhorn report in the March *ANNALS OF ALLERGY*.

ANTHROPOLOGY

The better to hear you with?

Two researchers, writing in the May 3 *NATURE*, report the discovery of the first ear ossicle — an incus — of a Plio-Pleistocene hominid. Yoel Rak of the department of anthropology at the University of California at Berkeley and Ronald J. Clarke of the Transvaal Museum in Pretoria, South Africa, say that the ear bone differs substantially from that of modern humans, and that the dissimilarity exceeds that between the ear bones of *Homo sapiens* and those of the African apes.

The bone — the right incus — was discovered in a specimen of *Australopithecus robustus*. Comparisons of the bone with that of a human, a gorilla and a chimpanzee revealed differences on the medial side, the lateral side and on the articular surface. The researchers conclude that "the solid appearance of the ... incus and of its articular surface suggests that its shape is not the result of some pathological process. Its unusual morphology is far beyond the range of normal variation characteristic of the incuses of modern man and the great apes."

Although the researchers say that specific phylogenetic and taxonomic implications of the discovery are unclear because of the lack of a comparative sample, they conclude that the bone is valuable in providing an indication of how great a phylogenetic deviation is represented by *A. robustus*.

Ancient tooth decay

Pre-sweetened cereals and sugary snacks have come under attack lately for their role in promoting tooth decay. But according to the results of a paper presented at the recent annual meeting of the American Association of Physical Anthropologists in San Francisco, tooth decay was a problem long before the advent of Tony the Tiger.

Lucile St. Hoyme, associate curator in the National Museum of Natural History's Division of Physical Anthropology and a member of the faculty of the Georgetown University Dental School, found in a 17-year-long study of prehistoric American Indian skeletal remains that as many as 60 percent of the children had crown cavities in spite of the absence of currently available culinary culprits. The main sweets available were berries, small wild grapes and, in the northeast, maple sugar.

St. Hoyme correlates the presence of cavities with a general decline in health and traces the trend to a change in lifestyle. Settling down in permanent villages rather than hunting in roving bands, the pre-Columbian Indians were subject to the threat of contagion, inevitable in living conditions of close proximity. In addition, accumulations of garbage drew scavenging, disease-carrying animals. As the population increased, food became more scarce, further weakening health. The opportunity for treatment available in a permanent settlement lowered the childhood mortality rate, but left scars in the form of defective enamel and interfered with tooth formation, St. Hoyme says.

Progress and antiquity on one road

It doesn't happen everywhere, but in Norton, Mass., the road of the future also leads to the past. Workers doing "archaeological reconnaissance" in advance of the construction of an interstate highway unearthed evidence of an early Stone Age civilization.

The find — which includes arrowheads, stone tools, chunks of burned rock, shards of pottery and bits of stone flaked off during tool making — is thought to be the remains of a nomadic Paleo-Indian culture that appeared in New England after the last glacial recession, perhaps 10,000 years ago.

A team from Brown University's Public Archaeology Laboratory is now working at the 34 sites that have been uncovered thus far.