

BIOMEDICINE

Baldness can be reversed, sometimes

Although there is still no way to prevent the garden variety kind of baldness — male baldness that begins with a receding hairline — a treatment for two specialized kinds of baldness common to men and women appears to have been found.

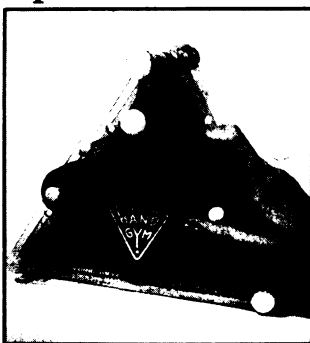
The two kinds of baldness are called alopecia areata and alopecia totalis. They cause sudden losses of patches of hair and may eventually involve the entire head. Any hairy area of the body may be involved, but the scalp and beard are more frequently affected. Reasons for the onset of the hair loss disorders are unknown, but emotional factors are suspected in many cases, and genetic factors may be involved in many others. White hairs are usually not affected by these kinds of baldness. So if the conditions strike suddenly, and the victims have both pigmented and white hairs, they may appear to become white-haired overnight.

A treatment for these conditions has been discovered serendipitously by Leopoldo F. Montes of the University of Alabama Medical Center in Birmingham. In his 20 years as a dermatologist, Montes explored all sorts of things to counter baldness. But he didn't have much luck until he tried halcinonide, an ingredient in prescription cream for the skin conditions psoriasis and eczema. Results in patients with alopecia were dramatic. Within a few months, hair regrowth was complete and, even more significantly, remained complete more than a year after treatment ended.

Hand gym for arthritis patients

A new device called a Hand Gym can improve function and delay deformities in the rheumatoid arthritic hand, Judith Schaufler and co-workers at St. Vincent's Hospital in New York City report in the May ARCHIVES OF PHYSICAL MEDICINE AND REHABILITATION.

Schaufler and her co-workers asked 18 rheumatoid arthritis patients to exercise both their hands on the device for four months. The patients' strength and range of hand motion showed statistically significant gains. Most of the patients also reported improved hand function after using the device. The Hand Gym isn't much larger than the size of a hand and can be used at home. It was designed by one of the team members.



Parental smoking affects children

In 1974, British researchers reported that cigarette smoke generated by parents' smoking doubled the risk of an attack of pneumonia or bronchitis in their infants (SN: 12/14/74, p. 376). Now research reported at the recent meeting in San Francisco of the American Federation for Clinical Research suggests that passive exposure to cigarette smoke can also impair breathing in children ages five through nine.

I. B. Tager and co-workers at Harvard Medical School obtained smoking histories from 444 families in Boston, then measured breathing ability (lung flow rates) for children in these families. The flow rates were corrected for age and height. Lung flow rates were somewhat lower in children with smoking parents than in children with nonsmoking parents, provided the children themselves did not smoke. Lung flow rates were significantly lower in children with smoking parents than in children with nonsmoking parents, provided the children themselves smoked, too.

SPACE SCIENCES

A little Mars on earth

Certain volcanic processes on Mars, according to a group of university and government researchers, may strongly resemble volcanic processes that have taken place in such terrestrial regions as Antarctica and Iceland. One aid in their study of this possibility is a tiny volume of simulated Martian environment, contained in a specially built test chamber about the size of a small pocket watch. Designed by David B. Wenner of the University of Georgia, the chamber provides a carbon dioxide atmosphere at 1 to 10 millibars of pressure, at a temperature of about -80°C .

The glass-lidded chamber will be used to hold samples of palagonite, a partly amorphous rock that is produced when magmatic material is exposed to water, such as in a volcanic eruption through an ice cap. Some scientists believe that Mars has (or had), besides polar caps, large regions with a substantial layer of subsurface permafrost. Since there are also signs of volcanism on Mars (the towering peak of Olympus Mons is a conspicuous example), it is possible that some of those eruptions resulted in the formation of palagonite. Terrestrial palagonites, says Wenner, are often high in iron content and low in silicon, and the elemental analyses of Martian surface material by the Viking landers are consistent with the existence of high-iron, low-silicon rocks. Martian palagonites may be quite different from their earthly counterparts, however, Wenner says, since the low atmospheric pressure (less than one percent of earth's) probably allows the palagonites to give off their content of volatiles, which would also weaken their structure.

This summer, Wenner, together with Gerald Schaber and Elliot Morris of the U.S. Geological Survey, will visit Iceland to sample the palagonites there. This will provide "ground-truth" data to calibrate Landsat photos of the rocks *in situ*, while part of the sample will be placed in the "Martian" test chamber to stimulate volatilization like that supposed for the red planet. John Adams of the University of Washington will then take spectra of both types, providing "reference spectra" that can be used in searching existing and future remote-sensing data for signs of possible palagonites on the Martian surface.

European comsat launched

Last September 13, in an event that has become rare since the early days of the Space Age, a National Aeronautics and Space Administration rocket blew up in midair, scarcely a minute after leaving its launching pad (SN: 9/17/77, p. 181). Its ill-fated payload was the multi-nation European Space Agency's first communications satellite, known as Orbital Test Satellite 1. Fortunately, a backup satellite had been prepared, and on May 11, OTS-2 was successfully sent into orbit. Its own built-in rocket motor was fired about a day and a half later, sending it toward its assigned geosynchronous position at longitude 10° East, approximately over Gabon.

One planned use of OTS-2 is as an experimental link joining CERN and three other European high-energy physics laboratories that often analyze data from one another's experiments. The hope is that OTS-2 can eliminate what amounts to a bottleneck created when the data-transmission rate of land lines is much slower than the processing rate of the receiving computer.

Other tests will be concerned with telephone traffic routing, "semi-direct" television broadcasts, propagation studies and small-terminal evaluations. The satellite is expected to reach what an ESA official calls its "full operating rhythm" in September. Designed to operate for at least three years, OTS-2 is now considered the forerunner of the operational ECS (European Communications Satellite) series, scheduled to make its debut in 1981.