

their products; and the products of incomplete combustion of carbonaceous materials.

In all of these the cancer causes presumably belong to the general family of polynuclear hydrocarbons, of which the prototype 3,4-benzopyrene was identified in coal tar.

The ultraviolet light of the sun has caused skin cancer in farmers in certain geographical locations. X-rays in radiologists and arsenic in insecticide manufacture have been responsible for occupational skin cancer. Osteosarcoma is the dominant tumor found in radium dial painters.

Dr. Norton Nelson of the Institute of Industrial Medicine, New York University Medical Center, New York, says the association of lung cancer with chromium chemical manufacture now is well established. Experimentally, bronchogenic lung cancer from inhaled chromium has been reported. Both the refining of nickel and the manufacture of isopropyl alcohol have been linked with increased incidence of cancer of the respiratory tract, especially of

the sinuses.

More than 1,400 bladder cancers of occupational origin have been reported. Aniline was originally blamed and bladder cancers were dubbed aniline cancer, but a fairly narrow group of analogous compounds having similar properties to this poisonous liquid, used in making dyes, now appear to be the cause. Betanaphthylamine, benzadine and 4-aminodiphenyl have been implicated.

Control within industry is making large strides, ranging from rigid protective measures to abandoning the manufacturing process. However, all hazards are not under control.

Nuclear testing in the atmosphere and underground has added a whole new group of environmental causes of cancer for study. This man-made radiation, because of its special scope, has not been included in this discussion of the more common environmental problems.

• Science News Letter, 81:154 March 10, 1962

PHYSICS

Potassium "Whiskers"

See Front Cover

► THE FIRST STUDIES of tiny, single-crystal potassium "whiskers" by the electrons produced from the metal under strong electric fields as seen under powerful microscopes were explained to this year's winners of the Science Talent Search at the National Bureau of Standards.

It was previously thought that this type of metal was unsuitable for field emission studies because of its lack of physical strength.

The group was told by R. L. Parker and S. C. Hardy of NBS that the vapor-grown, single-crystal whiskers of potassium are actually extremely strong because of the lack of imperfections found in larger crystals and masses of the metal.

The whiskers are often less than two millionths of an inch in diameter and eight ten-thousandths of an inch long, the researchers explained. With the field emission microscope, the tips are magnified one million times so their growth can be studied.

Results of this study produced an interesting sensitivity of the process to visible light. Interpretation of the effects of light is not yet clear and the future scientists visiting the laboratory might get a crack at the solution in the future.

In addition to the crystal growth work, the Talent Search winners were shown advanced work in other areas of the physical sciences, including computer development, gas chromatography and radiation physics.

Dr. Bruce Steiner of the atomic physics section is seen on this week's cover, right, with some of the young scientists as he explains a high vacuum system for the determination of the interaction of hydrogen atoms and molecules with various particles.

The visit to the Bureau took place during a week of meetings with top-level scientists in the Nation's capital instead of the students' usual classes.

With the blessings of parents and teachers, the 40 winners left home for a tour of Government research laboratories as part of the program of the Science Talent Institute, Feb. 28 through March 5.

A full schedule was arranged by SCIENCE SERVICE, sponsors of the Institute. From the time of arrival these talented youths were busy with interviews, trips, luncheons and dinners with many of the best scientists in the country.

One of the highlights of the trip was the formal Awards Banquet, with the distribution of \$34,250 in Westinghouse Science Scholarships and Awards, Monday night, March 5.

The student-scientists also toured the Smithsonian Institution, National Gallery of Art, and Capitol Hill, as well as the National Bureau of Standards and the U.S. Armed Forces Institute of Pathology at Walter Reed Army Medical Center.

During their prime time the youths visited noted scientists in their laboratories in many Government research agencies.

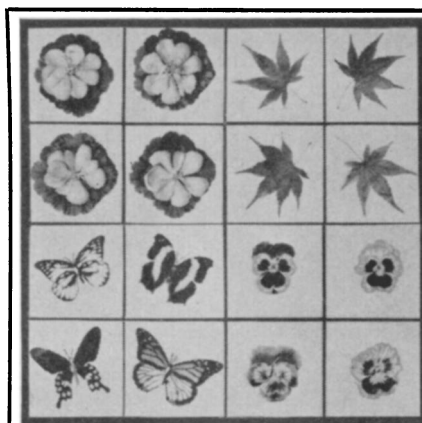
The National Institutes of Health, the U.S. Patent Office, Johns Hopkins laboratories, the Atomic Energy Commission, the National Aeronautics and Space Administration and many other important organizations opened their doors to the future scientists, with small group interviews planned.

The students were chosen during the annual Science Talent Search, conducted by Science Clubs of America, an activity of SCIENCE SERVICE, and supported by the Westinghouse Educational Foundation.

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