MEDICINE

False Syphilis Test Shows Other Serious Ills

➤ THE FALSE positive test for syphilis, when it continues time after time in the same person, is far from harmless as medical scientists have heretofore thought.

It may be the first sign of serious underlying disease, Drs. C. F. Mohr and J. E. Moore of the Johns Hopkins Hospital and Medical School, Baltimore, declared at a Venereal Disease Symposium held in Washington under the auspices of the U. S. Public Health Service and the American Venereal Disease Association.

Among 51 patients so far examined who for months and years continued to have false positive blood tests for syphilis, these doctors discovered cases of Hodgkin's disease, sarcoid, rheumatoid arthritis, an anemia called Gaucher's disease and the skin disease, disseminated lupus erythematosus.

Of the group, only six showed no signs of disease or abnormality other than the chronic false positive reactions for syphilis. Fourteen of the patients were normal clinically but their blood showed a distinctive chemical pattern of abnormalities which all occur regularly in disseminated lupus. The abnormal blood chemistry of these 14, the Hopkins doctors said, may represent very early stages of the disease and further prolonged observation of the patients is essential.

The conditions doctors call collagen diseases, particularly lupus, rheumatoid arthritis, periarteritis and rheumatic fever, may be closely related to the biologic false positive phenomenon. If further study shows this to be true, more knowledge of the early signs of these diseases and of their natural history may be obtained.

Science News Letter, May 10, 1952

ARCHAEOLOGY

Find 3,000-Year-Old Flood Control and Irrigation Works

➤ ANCIENT ARABIA, a thousand years before the birth of Christ, had flood control and irrigation devices far superior to anything they have in that region today. This is among the finds of the American Foundation Arabian Expedition described to the American Philosophical Society meeting in Philadelphia.

Because of the excess of mud, the ancient people of Qataban did not use storage dams, Dr. W. F. Albright of Johns Hopkins University reported. Their water came in raging torrents in the monsoons. It was caught and turned aside by deflector dams into canals. Weirs and sluices then directed the water onto the land for irrigation. Wherever there was a weir, there was a dike of stone which was a fine piece of engineering, Dr. Albright said.

One extremely important achievement of the expedition, Dr. Albright said, was the successful working out of dates for the finds. Study of several thousand inscriptions made it possible for archaeological "handwriting experts" to develop a system for dating an inscription by the way the letters were formed. The beginning of inscriptions at Qataban occurred 1,000 years before Christ. The first settlement was 1,500 B.C.

Letters in the Southern Arabian alphabet were arranged in nearly the same order that the Abyssinian and Ethiopic alphabet used 1,500 years later. It is different from the alphabet we use, however.

A single mound was excavated clear down to the bottom of bedrock. The pottery of each layer was laid aside and studied separately. The trip down through 50 feet of depth of the mound carried the archaeologists backward in time to 1,000 years before Christ. By arranging samples of each pottery layer in order they were able to construct a pottery calendar by which other finds in the area can be dated over a period of 2,000 years or more of time.

Evidence was found for the earliest foreign commerce of the region, dating back to six centuries before Christ. The people exchanged goods at first with Egypt and Babylonia and later with Greece and Rome.

Science News Letter, May 10, 1952

MEDICINE

Sludged Blood Clue To Multiple Sclerosis

➤ SLUDGED BLOOD and molecules of fatty proteins in the blood serum are providing new clues to the cause of the incurable nerve disease, multiple sclerosis, it seems from studies reported to the American Academy of Neurology meeting in Louisville, Ky.

Sludging of the blood, or packing together of the red cells in the blood vessels, was found in a group of multiple sclerosis patients studied by Drs. L. Roizin, R. Abel and F. Winn of New York. This sludging, they believe, might cause multiple sclerosis because it deprives nerve cells of oxygen.

Multiple sclerosis is a condition in which the myelin sheath of nerves is damaged or destroyed. Whether the patient has trouble in seeing or in bladder control or in use of his muscles, or any of the other symptoms of the disease, seems to depend on which nerves are damaged.

The molecules of fatty protein were increased in the blood of multiple sclerosis patients in an active stage of the disease, Drs. Robert B. Aird, John W. Gofman, Hardin B. Jones, M. Brent Campbell and Bill C. Garoutte of the University of California School of Medicine reported. They believe that the increase in these molecules is related directly or indirectly to the cause of the demyelinating process.

Science News Letter, May 10, 1952

IN SCIEN

MATHEMATICS

New Tables Contain Logs Computed to 23 Places

➤ SCIENTISTS HAVE another mathematical tool in the new Smithsonian Institution logarithm tables just available.

They make it possible to save time in calculating the logarithm of any number up to 99,999,999,999,999,999,999,999 (99 sextillion). And it can be done to an accuracy of 23 places. The new tables totalling 400 pages use the factorization method of computing logarithms.

The usefulness of logarithms, which youngsters learn about in high school, is that multiplication and division can be turned into addition and subtraction, while squaring and taking roots becomes multiplication and division. The slide rule works because it is laid off on a logarithmic scale.

The logarithm of a number is the power to which a base must be raised to equal the number. Both e, which is 2.718281828, and 10 are bases used in the new tables.

The tables were prepared by George W. Spenceley, Rheba M. Spenceley and Eugene R. Epperson, all of Miami University at Oxford, Ohio, and have just been published by the Smithsonian Institution.

Science News Letter, May 10, 1952

AERONAUTICS

Wax on Windshield Provides Clear Vision on Jet Planes

➤ THREE FILMS of three different kinds of wax are being successfully used on the windshields of British jet-fighters to provide clear vision for the pilots in rain and in making carrier deck landings in spray.

The films are water repellent. They cause the water landing on the glass to spread and flow down the glass in a sheet so even and continuous that it does not interfere with vision. The film coatings provide jet pilots with the best method yet found in England to have clear vision in rainy weather. The principal disadvantage of the wax films is that they wear off in about three weeks time and new coatings have to be applied.

Conventional airplanes equipped with ordinary propellers do not require this windshield coating of waxes. The propellers themselves blow the water off. Also such planes usually travel at a slow enough pace to permit windshield wipers to be used. At the speed with which jet fighters travel windshield wipers are torn off. The wax coatings are the best solution yet.

Science News Letter, May 10, 1952

CE FIELDS

BACTERIOLOGY

Microbes Have Sex Life Growing in Blood

➤ SEX LIFE becomes possible for certain microorganisms when they are grown in human blood, it appears from studies reported by Drs. M. E. Hunter and E. D. DeLamater of the University of Pennsylvania at the meeting of the Society of American Bacteriologists in Boston.

The microorganism they studied is called *Bacillus megaterium*. Sexual fusion of these microorganisms has previously been reported. Now the scientists have reported how the chemical composition of the material the microorganisms grow on influences their fusion.

Bloods from animals and humans, sugars, B vitamins and the protein building blocks known as amino acids were tested. Glucose, among the sugars tested, had a definite inhibiting effect, as judged by secondary colony formation. Certain other sugars and the B vitamins encouraged secondary colony formation. This colony formation presumably results from offspring of the fused microorganisms.

Of all the bloods tested, human blood was the only one on which sexual fusion of the microorganisms was detected by examination of the microorganism cells under the microscope. The fusion-inducing factor was localized in a special part of human blood serum known as Cohn's Fraction III.

Without protein or its building blocks, the amino acids, no secondary colonies are formed, indicating no fusion has taken place.

When the bacteriologists tried synthetic material for the microorganisms to grow on, they found certain amino acids had a stimulating effect on fusion.

Science News Letter, May 10, 1952

HOME ECONOMICS

Broom Still Popular Equipment in Farm Homes

➤ MODERN DESIGN and the machine age still have not replaced the old fashioned broom as the most popular piece of cleaning equipment in the farm home.

Miss Helen C. Potter, University of California housing research specialist, reported that of the 2,639 homemakers who answered a questionnaire on the frequency of use of cleaning equipment, 2,069 use the broom daily in their work about the house, while only 382 use the vacuum cleaner.

The survey showed that over 93% use the broom at least once a week, while only 80% of the homemakers use the vacuum cleaner at least once a week.

The study also revealed that the California rural housewife was more apt to use her carpet sweeper than her vacuum cleaner when she owned both pieces of cleaning equipment.

Dust pans got the nod for being the second most frequently used piece of cleaning equipment but of the 2,069 who use brooms daily, only 1,524 housewives use the dustpan daily.

The study was conducted as an attempt to gain information that can be useful in improving the design of closets for the storage of cleaning equipment.

Miss Potter reported that the frequency with which the broom, dry mop, vacuum cleaner, vacuum cleaner attachments, wet mop, dust pan and carpet sweepers are used, demonstrates the need for storage in a convenient and accessible closet.

Science News Letter, May 10, 1952

RADIO

New Television Stations To Be Built Farther Apart

➤ HUNDREDS of new television stations will probably be built throughout the country within the next decade or two. Those operating on the same channel will undoubtedly be placed farther apart than such stations built in the past.

The increased distance between television stations results from the fact that broadcasts can be seen and heard much farther than the line-of-sight distance originally estimated. Broadcasts from stations too close together interfere with each other and the two programs are superimposed.

Radio experts for several years have been striving to determine just why very high frequency, VHF, and microwave radio waves are nearly always heard even when the broadcasting station is well below the horizon. Their experiments and theories were presented and discussed at the joint meeting of the International Scientific Radio Union and the Institute of Radio Engineers.

Those reporting on their researches were Dr. Thomas J. Carroll of Massachusetts Institute of Technology, Dr. Joseph Feinstein of the National Bureau of Standards, Martin Katzin of the Naval Research Laboratory, and L. J. Anderson and J. F. Colwell of the Navy Electronics Laboratory.

These and other experts in the theoretical field do not agree as to why or how the upper atmosphere reflects these radio waves well beyond the horizon. The three most-generally accepted explanations are:

1. Radio waves are scattered by winds and other movement in the upper atmosphere.
2. Roughness of the earth's surface is responsible for some wave scattering.
3. Radio waves are reflected not just by the atmosphere's "radio roof," but also by the gradual change in the density of the upper atmosphere.

Science News Letter, May 10, 1952

MEDICINE

New Form of Antibiotic Is Better for Syphilis

➤ CHLOROMYCETIN PREPARATION not yet on the market is proving effective in curing syphilis and four other venereal diseases.

The new preparation is for intramuscular injections. Preliminary trials of it were reported by Drs. Sidney Olansky, Fred Harb, and Willie Simpson of the U. S. Public Health Service's venereal disease laboratory at Chamblee, Ga., at the Venereal Disease Symposium held in Washington under the auspices of the U. S. Public Health Service and the American Venereal Disease Association.

So far, 71 patients with early syphilis have been treated with no failures, although there were two reinfections. The syphilis germs disappeared from syphilitic sores in the average time of 22.8 hours.

One patient had gonorrhea with syphilis and the gonorrhea was cured while the patient was being treated for syphilis.

The new chloromycetin was used to treat 26 patients with granuloma inguinale and 16 with chancroid, with no failures. Five patients with lymphogranuloma venereum were treated and all improved clinically.

Science News Letter, May 10, 1952

PHYSICS

Light Helium Isotope More Ordinary Liquid

➤ A RARE and lighter-weight helium is not so strange, even though it is "twin" to one of the world's strangest liquids, ordinary helium liquefied. Ever since the discovery of the extraordinary superfluidity of ordinary helium 4, when cooled to near absolute zero temperature, scientists have wondered whether the other variety or isotope of helium, weight 3, is also a queer liquid.

A team of scientists from the Argonne National Laboratory, Chicago, told the National Academy of Sciences meeting in Washington that sufficient quantities of pure helium 3 have been manufactured by nuclear transformations to allow the investigations. The theory has been that the lighter helium isotope follows one kind of theoretical statistics, the Fermi-Dirac formulation, while helium 4 follows the Bose-Einstein statistics, which explains the phenomenon of flowing where it would seem impossible for any normal liquid to go.

Drs. Darrell E. Osborne, Bernard M. Abraham and Bernard Weinstock found that liquid helium 3 acted normally, but it does have the remarkable property of remaining liquid when cooled to absolute zero, unless a high pressure is applied, just as is the case with ordinary helium. The viscosity, however, increases as the temperature is lowered.

Science News Letter, May 10, 1952