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SCIENCE NEWS LETTER

®

THE WEEKLY SUMMARY OF CURRENT SCIENCE



Artificial Kidney

See Page 265

A SCIENCE SERVICE PUBLICATION

SCIENTIA INTERNATIONAL

NOVAS DEL MENSE IN INTERLINGUA

► **Botanica.**—Le inaequalitate splendor del coloration autumnal que characterisa le vegetation nord-american es explicite per Dr. J. Curtis del Universitate Wisconsin como effecto del climate. Le autumnos europees es plus gradual que illos de Nord-America. Sed istos—que arriva subitemente e disrump subitemente le connexion inter le cellulas del folios e del resto del plantas—es sequite per le calorose dies del si-appellate "estate indian" que resulta in un continuation del photosynthese in le folios. Iste recomende photosynthese, que manca in Europa, es responsabile pro le transformation del sucro del folios in le rubie pigmento anthrocyana.

► **Zoologia.**—Al Universitate Iowa, bufones mascule del genere *Xenopus* ha essite feminisate per medio de hormones. Le resultante pseudo-femininas produce un prole exclusive mente mascule.

► **Physiologia.**—Lacrimas, secundo recercas de Dr. R. Brunish del Universitate California, non es simplemente solutiones salinas. Illos es multo complexe e contine alte porcentages de proteina. In plus, lor composition differe secundo que lor causa es dolor, tristessa, o furia.

► **Medicina.**—In experimentos con cadaveres, simulate calculos renal ha essite dissolvite per medio de ondas ultrasonice de un frequentia de 25,000 vibrationes per secunda generate al puncta de un sonda renal. Le methodo es sub developpamento per Drs. H. Lamport de New Haven e H. F. Newman de New York. On spera que illo va esser presto pro essayos con patientes vive intra un o duo annos.

► **Astronomia.**—Le decuplamento del numero del grande telescopios del mundo e del intensitate e extensitate del recercas astronomic in general esseva demandate como un urgente desiderato per Dr. Otto Struve in su discurso presidential ante le Union Astronomic International congregata a Dublin in Irlanda. Dr. Struve signalava que le contributiones del astronomia al physica nuclear ha liberate le astronomia del reputation de un scientia "inutile" e que "in nostre dies de serie satellites artificial del terra e mesmo viages astronomic, le astronomia promitte devenir un scientia utile in un senso directemente practico."

► **Chimia.**—Un exactissime methodo pro le determination del contento de aqua in specimens de materia esseva developpate per un firma chimic de Hannover in Germania. Un quantitate cognoscite del specimen es hermeticamente includite in un receptaculo que es equipate con un manometro. Per pumper intra le receptaculo un phiala contine un cognoscite quantitate de chloruro de calcium, on initia un reaction per que omne le aqua del specimen entra con le chloruro in le formation de acetylen. Le pression del acetylen es allora un indice del quantitate de aqua in question.

► **Resources Mineral.**—Turros de sondage ha essite installate in le Firth of Forth in Scotia pro investigar le presenta submarin de un deposito de carbon amontante possiblementemente 6 milliardos tonnas, i.e. 6000 vices le currente production annual del plus grande mina de Scotia. Le exploitation del deposito va esser possibile per descendita directe a transverso le aqua o per tunelles al le costa. Simile interpresas es practicate in Canada, Chile, e Japon sed non ancora in le Statos Unite.

► **Paleontologia.**—On se rememora que le coelacanthido capturate a Matsumudu in Est-

Africa, le prime specimen vive de iste specie pelagic unquam vidite per homines, moriva post 20 horas de captivitate. Le explication de iste morte tragic de un pisce que on habeva supponite extincte deposit 50 milliones annos pareva esser le subite cambiamento de pression. Sed Dr. J. L. B. Smith de Grahamstown opina que un tal explication es insufficiente. Ille crede que il se tractava de un phenomeno "psychosomatic." Le nervos del pisce non poteva supportar le excitationes acustic e optic causate per le feroce celebration del nativos de Matsumudu post le capturation.

► **Pisceria.**—Le governo statounitese ha le monopolio del pisceria de phocas al insulas de Pribilof e deposit 1910 ha ganiate ab iste interpresa duo vices le precio total pagate a Russia pro le integre territorio de Alaska. In 1910 le population de phocas al insulas de Pribilof esseva circa 132 milles. Nunc illo es un e medie milliones. Iste augmento es le resultado del regula que solamente masculos isolate de plus que tres annos de etate pote esser capturate. In le societate del phocas, masculos tene harems de usque 40 vacas, e on pote esser secur que un masculo de tres annos qui ha non ancora succedite a establir su harem va remanere infertile.

► **Apicultura.**—Le Departamento de Agricultura de Canada reporta bon successos in le uso de streptomycina e altere antibioticos pro combatter epidemias de varie morbos in apes. Usque nunc tal epidemias esseva quasi irremediabile.

Lor propagation intra un populo de apes e mesmo ab un populo al populos vicin esseva rapidissime.

► **Paleogeographia.**—Un studio del orientation magnetic in roccas ab varie epochas geologic ha permitte a Dr. S. K. Runcorn del Universitate Cambridge in Anglaterra establir que 600 milliones annos retro le polo del nord del terra esseva in le vicinitate de Hawa.

► **Biochimia.**—Le Societate Chemic American audiva a su convention a Minneapolis un detaliate reporto de Dr. D. Perlman del Instituto Squibb pro Recercas Chemic in re le crescente uso de micro-organismos in le effectuation de alicunes del complexe processus chimic requirite in le manufactura de drogas como vitamina C, ephedrina, cortisona, hydrocortisona, etc. Hic se aperit un vaste nove campo de recerca. "Le alterationes chimic," diceva Dr. Perlman, "que es effectuate per certe micro-organismos sub conditiones laboratorial es apparentemente pauco relateate al alterationes que illos effectua in lor milieu natural. Il es difficile predicere le potentialitates de un organismo specific. Le specialista del chimia de fermentation e le bacteriologo studia continuentemente nove organismos in le spero de perfectionar processus que pote reimplaciar le plus complexe operationes developpate per le chimicos industrial."

► **Aeronautica.**—A Woomera in Australia on experimenta con un methodo de re-attrappiar rochettas durante lor descendita ante que illos tocca le terra. Illos es equipate con un paracadute cuje cabo de attachamento se connecte con un cabo trainate in remolco per un aeroplano. Tunc le aeroplano passa per un canyon ubi un tercie cabo (transversal e stabile) retine le rochetta.

Science News Letter, October 22, 1955

Practical World Language

► PREVIOUSLY ISSUED as a separate publication, Scientia International is incorporated into SCIENCE NEWS LETTER with this issue as a monthly feature edited by Dr. Alexander Gode. Readers are invited to send this page to non-English-speaking friends.

Interlingua is no overnight creation of one linguist or even one group of linguists. No one sat down and theorized as to what an international language should be. Instead three decades ago, in 1924, an ambassador-to-be, a chemist, several radio engineers, several educators, editors and linguistic experts started a long and detailed inquiry into what an international language should be.

The International Auxiliary Language Association in 1953 asked Science Service to carry on the application of Interlingua, which is being done from offices at 80 E. 11th St., New York City.

In that short time, 15 journals have adopted Interlingua, 13 using it for summaries of articles. These journals publish Interlingua at the rate of 375,000 words a year.

In addition, two international conferences, one in cardiology and the other in pediatrics, used Interlingua for abstracts, totalling 100,000 words.

An extraordinary reception has been given Interlingua in practice, research and editing. It is found to be a practical, needed method for making information available across language barriers. A university course in Interlingua is being given at New York University.

Science Service Interlingua Division will cooperate with editors of journals and conferences

in similarly applying Interlingua to their international communications.

While Interlingua can be read with little difficulty by almost anyone, books are available which will give a formal acquaintanceship with this international language. The following books are recommended and can be obtained, postpaid, at the prices indicated, from the Retail Book Department, Science Service, 1719 N Street, N.W., Washington 6, D. C.

For an amusing introduction to Interlingua, read INTERLINGUA A PRIME VISTA (Interlingua At Sight)—Alexander Gode—Storm, 82 p., illus., \$2.00. Pictured explanations without any English text at all allow the beginner to learn Interlingua. Pronunciation table and seven-language list of grammatical words are included. This book is in the same style as the very successful SPANISH AT SIGHT.

Enrich your vocabulary with the 27,000 word INTERLINGUA - ENGLISH DICTIONARY—prepared by Alexander Gode and Hugh E. Blair—Storm, 411 p., \$5.00. An important aid in reading, writing and speaking Interlingua. This dictionary contains a liberal, all-purpose vocabulary including abundant selections from the terminology of many special fields.

Master Interlingua's easy construction with the INTERLINGUA GRAMMAR—prepared by Alexander Gode and Hugh E. Blair—Storm—118 p., \$3.50. This valuable book enables you to master Interlingua completely in a fraction of the time it takes normally to learn only one of the many foreign languages Interlingua contains.

Information on Interlingua, including brief grammar, will be sent free on request.

Science News Letter, October 22, 1955

METEOROLOGY

Highest Man-Made Cloud

Sodium spraying rocket creates huge C-shaped orange-red cloud 40 to 70 miles above the New Mexico desert to reveal secrets of upper atmosphere.

► THE HIGHEST CLOUD ever made by man, a mile-wide, 30-mile-high, orange-red "C" in the twilight sky, was formed by an aerobee rocket spewing sodium from 40 to 70 miles above the earth's surface at Holloman Air Development Center, N. M.

It left a trail like that made by a jet fighter, but much wider, brilliantly colored and longer lasting. The 30-mile column of sodium vapor was visible within a 300-mile radius of the Air Force's research center here.

John Bedinger, scientist in charge of the experiment, said the project was a "complete success scientifically."

"Every instrument worked properly, and there is no doubt the radiation we measured was emitted by sodium atoms."

Such a bright sodium vapor trail has never been seen before, Mr. Bedinger said. It was so intense, the photoelectric instrument scanning it from 9,700-foot Sacramento Peak, 12 miles from here, was thrown off scale.

The experiment was a joint project of Holloman Air Development Center here and the Air Force Cambridge Research Center, Cambridge, Mass., where Mr. Bedinger is stationed.

It has no direct connection with launching an artificial satellite, although some scientists have suggested this method of

making an earth-circling moonlet more visible. The experiment shows this idea has worked.

Sodium atoms in an excited state caused the glowing 30-mile column. (They also give the light of sodium vapor street lamps.)

Although it was twilight on the ground when the aerobee shot from its tower, the sun was still shining 40 miles up where the first flash of vaporized sodium was seen.

Four pounds of the metal carried in two vaporizers left the trails, still visible to the naked eye 28 minutes after firing. Sunset gradually obscured the column, the lower clouds disappearing first.

Some turbulence could be seen, but at least two weeks will be needed to make a complete analysis of this and other results.

Preliminary observations indicate the lower part of the vapor column was carried eastward at a speed no less than 150 miles per hour, the middle portion stayed put, and the top part went westward.

To a ground observer, the giant "C" was written in orange-red in the sky.

Aim of the experiment was to learn more about the earth's atmosphere, the proportions of the elements composing it and some of the chemical reactions at high

altitudes.

Scientists have calculated this information by theory. But actual measurements are needed to make sure the computations are correct. The trail's brightness and persistence exceeded the most optimistic expectations.

About 1,200 pounds of rockets and instruments were required to get four pounds of sodium to the 40-to-70 mile altitude. There, the sodium was thrown out at a temperature of 2,500 degrees Fahrenheit.

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MEDICINE

Tumor-Like Growth Seen Causing Sterility

► A TUMOR-LIKE growth may be the unsuspected cause of sterility in some men, Drs. Frank J. Glassy and F. K. Mostofi of the Armed Forces Institute of Pathology, Washington, D. C., suggested at the meeting of the American Society of Clinical Pathologists in Chicago.

They advise doctors treating men for infertility to consider the possibility of this tumor-like growth which would block the passage of sperm.

The growth is called spermatoc granuloma. It is not as rare as once thought, the Army pathologists said.

These growths often are produced by injury to or infection in the spermatic ducts through which the male sperm passes after leaving the testis where they are produced.

In the majority of the cases pain and swelling were the first indication that anything was wrong. In some cases, a "nodule of inflammation" was present for as long as 30 years before a physician was consulted.

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MEDICINE

Hint Heart Patients Lacking in B Vitamin

► PATIENTS dying of severe heart disease may have been undernourished, lacking particularly vitamin B one, or thiamine, suggests *Nutrition Reviews* (Oct.).

The hint of this B vitamin lack is based on recent post-mortem studies in which the vitamin content of the heart muscle was measured.

Less of the vitamin was found in the heart muscle of 12 patients who died of heart failure with signs of various kinds of organic disease than in heart muscle in 10 patients without heart disease who died of other causes. The differences, moreover, were consistent, with no over-lapping between the two groups.

Whether the lack of thiamine was enough to impair the vital chemical processes in the heart muscle is not known. Thiamine is known to be important for this, and the finding of thiamine deficiency suggests the vitamin lack may have harmed the heart muscle chemical processes.

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HIGH ALTITUDE FLOW—Picture of low pressure air rushing over a cylinder in the University of California's high altitude wind tunnel indicates that supersonic planes may encounter greater heat problems above 20 miles than they do near the ground. The reason is that air is more viscous at such high altitudes. (See SNL Oct. 15, p. 248.)

GENERAL SCIENCE

Seek Young Science Talent

Fifteenth Annual Science Talent Search to find top high school science students has started. Contestants will vie for \$11,000 in scholarships and a trip to Washington.

► A NATIONWIDE search got under way in Washington to find the 40 most promising science-minded high school seniors in the country.

The Fifteenth Annual Science Talent Search was launched with an invitation to seniors in 27,000 public, private and parochial schools throughout continental U.S.A. They will have the opportunity to compete for \$11,000 in Westinghouse Science Scholarships and a five-day visit to Washington. Valuable honorable mention status will go to 260 others. The results of the Search will reveal who among this year's seniors will be the nation's leading scientists of the future, and will stimulate others to undertake scientific training.

The Science Talent Search is conducted by SCIENCE SERVICE and supported by the Westinghouse Educational Foundation. Watson Davis, director of SCIENCE SERVICE, in announcing this year's Search, called attention to the growing shortage of scientists and engineers, a shortage which hampers the nation's industrial and defense programs.

Principals and science teachers in secondary schools throughout the country are now receiving instructions on "How You Can Search for Science Talent." They will learn how to recognize science talent among their students and encourage those boys and girls to enter the Fifteenth Annual Science Talent Search.

They will send for, and after Nov. 15 receive, about 16,000 sets of entry materials so qualifying seniors can enter the competition for \$11,000 in scholarships. Thousands of seniors will comply with all requirements for entry right in their own schools.

From the 16,000 entries it is estimated about 2,500 will complete all entry requirements. Of these, 40 will be named as national winners and will receive five-day, all-expenses-paid trips to Washington, D. C., to attend the Annual Science Talent Institute.

Another 260 will be named for honorable mention. All 300 will be recommended to colleges, universities and technical schools of their own choice. As in the past, it is expected all will receive offers of financial assistance for college educations from other sources on the basis of this honor. Many of the 40 winners of 1955 were offered as much as \$30,000 in scholarships.

To comply with entry rules, each contestant must take a two-and-one-half science aptitude examination in his own school, submit personal and scholastic records and write a report of about 1,000 words on "My Scientific Project." The examination may be taken between Dec. 5 and Dec. 27.

All entries must be in the offices of SCIENCE SERVICE by midnight, Tuesday, Dec. 27, when the competition closes.

Winners and honorable mentions will be announced late in January, 1956, and the 40 winners will come to Washington, D. C., March 1-5, 1956. After five days of meeting the nation's outstanding scientists, of learning about the latest developments in science and of visiting places of historic and scientific interest, the winners will receive scholarships ranging in size from \$100 to \$2,800.

How well the Science Talent Search has been able to replenish the much needed supply of scientists is illustrated by a survey of the present careers of the 560 young men and women (from 15 to 32 years of age) chosen in the first 14 years (1942-55) of the Search: All are in or have attended college. With very few exceptions they advance to a bachelor's degree, and over 50% of those old enough already have a doctor's degree.

Many Become Teachers

Industry has taken the largest number of the winners now working full time. The highest reported salary is over \$13,000. A smaller number are in government employment. In spite of much lower salaries, careers as teachers and researchers in colleges and universities rank second in choice. Those self-employed are relatively few — most of them physicians with private practices.

Service in World War II cut in heavily on the time of the winners from 1942-45 and consequently delayed the careers of most of these men in those years. Winners of later years have been fortunate in receiving draft deferments in order to continue their education. Of the men now serving in the armed forces, most are serving in the line of their completed training.

The judges of the Science Talent Search are Dr. Rex E. Buxton, Washington psychiatrist; Dr. Harold A. Edgerton, vice-president, Richardson, Bellows, Henry and Co., New York City, and Dr. Stuart H. Britt, vice-president and director of research, Needham, Louis and Brorby, Inc., Chicago. The latter two have designed the science aptitude examination for each of the Science Talent Searches.

High school seniors in some states will have a double chance to win scholarships through state Science Talent Searches run concurrently with the national competition and by special arrangement with Science Clubs of America.

In 1956 the following states will hold

these competitions: Alabama, Arkansas, Connecticut, District of Columbia, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Maine, Maryland, Massachusetts, Michigan, Minnesota, Montana, New Hampshire, New Mexico, North Carolina, Oklahoma, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Vermont, Virginia, West Virginia and Wisconsin.

For complete details of the National and State Science Talent Searches write to Science Clubs of America, 1719 N. St., N.W., Washington 6, D. C.

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MEDICINE

Heart Surgery For All?

► A HEART OPERATION not only for President Eisenhower but for everyone around the age of 40 was recommended by Drs. Claude S. Beck and Bernard L. Brofman of Cleveland at the meeting of the Medical Society of the District of Columbia.

A marked drop in the amount of heart disease in the nation could be achieved by wider use of the operation, they said.

The operation, devised by Dr. Beck 20 years ago, consists in "roughing up" the heart wall so that it adheres to its surrounding sac. As a result of this, new channels for blood flow develop. This development of new channels to supply blood to the heart muscle is what the President's physicians hope is taking place in the President's heart now. It is part of the usual recovery process after a myocardial infarction in which blocking of a blood vessel to the heart muscle has deprived that part of the heart of blood.

The operation, the Cleveland doctors think, accomplishes this more surely and effectively than the usual recovery process. When first developed the operation was considered chiefly as a last resort on very

sick patients. But the Cleveland doctors think this is a mistake.

The mortality from the operation in the last series of patients is only six percent, they reported. Deaths are due not to the operation but to the heart disease itself. Consequently the doctors believe the operation should be performed before the heart has been damaged.

While operating on everyone at the age of 40 is hardly practical, they do advise operating on patients who have a family history of heart attacks before these patients have had their own first attack. The doctors also advise operating on patients who complain, as 99 out of 100 heart patients do, of pain in the chest after exertion or emotional upset. Careful questioning of such patients and careful examination give the hint of a heart attack to come. This, the Cleveland doctors think, can be forestalled by the operation.

The operation, it was pointed out, not only develops more channels of blood flow to the heart muscle but also distributes these channels so that all parts of the heart muscle get the benefit.

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NATIONAL DEFENSE

Blood Bank For Disaster

► IN CASE of Operation Alert 55, meaning multiple enemy attacks with nuclear weapons, we might come "within shooting distance" of having the blood needed for casualties during the first 21 days if a new blood use plan is adopted.

The plan is to make use of both Group A blood and the Universal Donor Group O blood. Group O blood, used by the Army in Korea, can be transfused without first testing the patient's blood.

However, to fill the estimated blood needs for the first 21 days in case of Operation Alert 55, we would have to bleed some 16,000,000 people. That would be a physical impossibility since it would mean bleeding around the clock every day for 31 days to get all that blood.

The new plan would double the amount of available blood or, to put it another way, would halve the amount that need be collected. This is because in the American population, 45 out of every 100 persons have group O blood and 41 of every 100 have group A blood. Blood from group A donors can safely be given to patients with group A blood.

A single, simple test that could be used in mass civilian disasters or on the battlefield would tell which patient had group A blood. By making this test, all the A and all the O blood collected can be used in emergencies requiring millions of pints of blood in a hurry.

The plan has been worked out by Lieut.

Col. Joseph H. Akeroyd and Lieut. Col. William H. Crosby at Walter Reed Army Medical Center in Washington and is reported in the *Journal of the American Medical Association* (Oct. 1).

The biggest stumbling block right now to the plan or even to large scale field trials is getting the right blood typing serum. The serum to be used on the field must be one that works fast and gives unequivocal results.

Serum now available commercially and in blood banks is not fast enough.

The Army medical scientists have prepared some themselves which works in less than 10 seconds. This speed of testing is essential, they point out.

The serum must be fast both in picking out the persons with B blood, who could not be given A blood transfusions, and also those, called "weak reactors," who have AB blood and whose blood, because of the A factor, would take a little longer, say 25 or 30 seconds to show a reaction.

By using this kind of quick blood typing serum, the mistakes, if any, would be on the safe side. By reading the reaction too fast, a patient might be labelled an O when he is an A. But in that case he would get Universal Donor O blood, which would be safe even if this missed a chance of using some A blood.

With a supply of suitable typing serum, trials must be made to see whether persons with very little training can make the tests

in the laboratory and under field conditions of fatigue and rush and noise.

Col. Akeroyd found that by merely showing untrained persons a picture of what they will see in the test, 500 bloods could be tested without a mistake.

Plastic bags in which whole blood for transfusion is now packaged could, Col. Akeroyd suggests, have pictures on them showing how to make the test.

Testing equipment might consist of a very clear plastic tube about an eighth of an inch in diameter and two and a half inches long. One end could have a lancet, with a sterile cap, for pricking the patient to get a drop of blood.

The other end could have the typing serum sealed into it. By snipping off one end with scissors, the blood could be drawn into the serum and the test made immediately in the plastic tube.

The Army scientists hope that Civil Defense authorities and the nation's blood banks as well as the military will soon start tests and trials to explore the plan further and get it into working shape.

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ENGINEERING

Engineers Get Help On Scientific Spelling

► EVEN PHYSICISTS and engineers are puzzled over whether to use electric or electrical—acoustic or acoustical.

To help you make a choice in the case of acoustic-acoustical, Dr. F. V. Hunt, of Harvard University, makes the following suggestions:

Use acoustic to qualify terms having the properties or physical characteristics of sound. Say "acoustic energy," "acoustic output," "acoustic wave." But say "acoustical engineer," "acoustical device," "acoustical measurement."

Trying to decide which ending to use can help the writer figure out exactly what he is trying to say, Dr. Hunt points out in offering his suggestion to the *Journal of the Acoustical (not Acoustic) Society* (Sept.).

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ENGINEERING

Industrial Spider Spins Fine Wire

► A MECHANICAL "SPIDER," so precise it feels every slight change in tension of the fine wire it spins, is making aircraft safer to fly. It is a coil-winding machine that spins wire coils for gyroscopes, fuel gauges and other aeronautical controls.

The "spider" spins loops less than 1/25th of a hair width apart at speeds up to 1,500 revolutions per minute.

An electronic machine developed by Minneapolis-Honeywell engineers, in Minneapolis, it can produce accuracies in spacing wire down to .0000000001 of an inch. But nobody has yet found a use for such fine work.

Science News Letter, October 22, 1955

MEDICINE

Anti-Clot Drugs For Life?

► PRESIDENT EISENHOWER'S physicians will keep the President taking anti-blood clotting drugs regularly for the rest of his life, if they agree with an opinion expressed at a meeting of the Medical Society of the District of Columbia.

A patient who has suffered a heart attack like the President's should continue taking these drugs for life, Dr. E. Sterling Nichol, medical director of the Miami (Fla.) Heart Institute, declared.

Dr. Nichol was one of the first physicians to use the anti-clotting drugs for patients in an acute attack of coronary thrombosis. He has pioneered the long-time use of these drugs, starting his first patients on it in 1944.

Of 1,091 patients he and other physicians have kept on this continuous anti-clotting treatment, only 12% have since died of further heart attacks. The mortality in 319 who started the treatment and then abandoned it was 28%, more than twice as great. In another group of 441 patients who never started the anti-clotting treatment, the mortality was 37%.

The 1,091 patients in this group have been on the anti-clotting treatment for from

one to eight years. The average time has been two years.

Some doctors are afraid to keep patients on these drugs indefinitely because of the danger of bleeding. Of the nearly 1,100 patients Dr. Nichol reported on, however, only six died of hemorrhage, which he called a "negligible risk" compared to that of another and possibly fatal coronary thrombosis.

Some patients object to taking the drug for life. These are the ones who were the least sick and feel fine after recovering from the first heart attack. The reason the patients object is that they must report every one, two or three weeks for a test of their blood's clotting time. The dose of anti-clotting drug is regulated according to the result of each of these tests.

Patients can have the tests made even when they are away from home. Dr. Nichol has a list of physicians, including some 30 in foreign countries, to whom he refers his traveling patients.

The drugs are taken by mouth. Dicumarol was the first of these given by mouth. There are several others now under test.

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MEDICINE

Nerve Surgery For Heart

► SOME PATIENTS who have had a heart attack like President Eisenhower's can be helped by a nerve-cutting operation reported by Dr. Gerald H. Pratt of New York University, New York, at the meeting in Washington of the Medical Society of the District of Columbia.

Dr. Pratt made it clear, however, that he was not advising or suggesting this operation for the President.

"It is impossible for anyone to decide anything about the President except those taking care of him," Dr. Pratt declared emphatically.

The nerve-cutting operation, called sympathectomy, is to dilate arteries that have been stopped by a clot or plug. It can be done for blocking, or occlusion, of arteries anywhere. When one of the heart's arteries is blocked, a reflex spasm keeps the artery and often other neighboring arteries closed. By cutting a nerve by the spinal cord, this reflex can be broken.

The nerve to be cut depends on which artery is affected.

For heart arteries, Dr. Pratt advises a "dry run" before operating. The "dry run" consists in injection of novocaine into the nerve. If this dilates the artery temporarily, as shown by the patient's improvement, the operation is performed. If the novocaine injection has no effect, the operation is not done.

The operation itself is safe, as shown by the low mortality, three percent in about 300 patients.

Included in the group were 28 patients over 80 years old.

When a large part of an artery is blocked, it may be necessary to remove it and put in a graft of artery wall or some other material. Lately Dr. Pratt has used a kind of corrugated nylon tubing. But in addition to the graft, Dr. Pratt does the nerve-cutting operation.

The operation is the same that surgeons have done for many years to relieve very high blood pressure. Its extension to relieve patients still suffering severe pain after recovery from a heart attack is relatively new.

Science News Letter, October 22, 1955

METEOROLOGY

"Express" Balloon for Quicker Weather Data

► WEATHERMEN can now gather important data about the upper atmosphere twice as fast with a new "express" weather balloon developed by the Army Signal Corps.

The fast-rising balloon zooms into the air at 1,800 feet a minute, automatically radioing down information about pressure,

temperature and humidity before it bursts at a height of about 15 miles.

Two men are needed to release the balloon, one to handle the seven-foot-diameter sack, the other to launch the attached instruments.

Made of neoprene, a tough synthetic rubber, the sack is inflated with 300 cubic feet of hydrogen, more than twice as much as in standard weather balloons. Below the sack hangs a compact radiosonde, that flashes the data to recording instruments on the ground. When the balloon bursts, the instruments fall to earth by parachute.

Ordinary weather balloons are about six feet in diameter and rise at a rate of 1,000 feet a minute.

Inflated in a special hangar, new express balloons are released daily at the Evans Signal Laboratory at Belmar, N. J.

An added advantage of the swift ascent of the fast-rising balloon is that it rises nearly straight up from the station, rarely being blown out of range of the ground tracking equipment.

By studying the path of the balloon, meteorologists can determine the speed and direction of air currents high in the atmosphere.

The new express service will be of benefit to general weather forecasting, aircraft, special guided missile uses and to artillery forces.

The balloons are three times stronger than ordinary weather balloons and will stretch until the internal pressures bursts the sack.

Science News Letter, October 22, 1955



HIGH ALTITUDE EXPRESS—Researchers of the Army Signal Corps release one of their "express" weather balloons which provides upper atmospheric data about twice as fast as balloons used today. Two men are required to launch the weather balloon.

MEDICINE

Dual Lung Cancer Cause

British scientists report air pollution and cigarette smoking are causes of lung cancer in Liverpool. Benzpyrene, which is present in both tobacco and the air, may be the culprit.

► CIGARETTES and air pollution share the blame for lung cancer in men, with cigarettes getting the major part of the blame. This is the finding of the British Medical Research Council study reported in the *British Medical Journal* (Oct. 15).

The study compares the lung cancer death rates among non-smokers and pipe and cigarette smokers in Liverpool, and a rural area in Wales and a mixed town and rural area.

"It is estimated," the report concludes, "that about half the Liverpool deaths of men from lung cancer arise from cigarette smoking and about three-quarters of the remaining half are due to a factor which is only slightly present in the rural area."

Benzpyrene, the study findings "suggest," is the one agent involved in both cigarettes and in city but not rural air.

This cancer-causing chemical has been isolated from cigarette smoke. Cancers in mice have been produced by a cigarette smoke condensate. "Nevertheless," the report states, "it has always been obvious that smoking could not account for all cases of lung cancer."

Until now, however, it has not been possible to "make a reliable assessment of the proportion so caused."

In the current study, air samples from Liverpool, the rural Welsh area and the mixed urban-rural area were analyzed chemically.

The Liverpool air had about 10 times as much benzpyrene as the air from the rural area.

This is "interesting," it is pointed out, in view of the fact that lung cancer death rates among men who do not smoke are eight times as high in Liverpool as in the rural area.

The rural death rate, however, increases in proportion to the number of cigarettes smoked per week. Pipe smokers as a group rank with smokers of about 25 cigarettes a week.

Liverpool death rates are higher than the rural rates in every smoking category, that is, light, moderate and heavy smoking. But the ratio falls progressively from about nine to one among non-smokers to a small value approaching unity, that is almost no difference, among heavy cigarette smokers.

The scientists figured the amount of benzpyrene different categories of smokers could be assumed to get from their cigarettes and pipes and the amount of this substance men would get into their lungs from the air in Liverpool, in the rural area and in the mixed urban-rural area.

While the figures could not be absolute, the agreement between the relative amounts

of benzpyrene intake and the death rates is good enough to justify a working hypothesis that benzpyrene might be the agent responsible for the associations of lung cancer with smoking and with city residence where the air is more heavily polluted.

The study is presented as an "interim report" with the idea that the theory from it may help research in the field, whether or not the theory is finally proved.

The scientists who made it are Dr. Percy Stocks, senior research fellow of the British Empire Cancer campaign, and Dr. John M. Campbell of St. Bartholomew's Hospital, London.

They think their findings so far and their theory about benzpyrene should "encourage further research into the amounts of this and other hydrocarbons in the air, both outside and inside buildings, in different localities."

Science News Letter, October 22, 1955

MEDICINE

New Blood Test for Germs Speeds Treatment

► TREATMENT of infections by antibiotics, or so-called mold remedies, can be speeded by a new blood test announced at the meeting of the American Society of Clinical Pathologists in Chicago.

With this test doctors can tell in 48 hours instead of three weeks which germs are causing sickness in a particular case. Then the doctors can quickly tell from other tests which antibiotic will check or kill the particular germ in a given case and help the patient to recovery. It is expected to be particularly useful in cases in which germs resist antibiotics usually given.

The test uses the membrane filter now widely used to detect and identify germs in milk and water and to examine germicides. It was adapted to the new use by Drs. George Milles and N. J. Menolascio of Augustana Hospital, Chicago.

The new technique takes advantage of the fact that after 18 hours incubation the few bacteria in a blood sample can be trapped on a sufficiently fine filter. The bacteria are then subjected to further study so that within 48 to 72 hours the proper antibiotic can be determined.

Science News Letter, October 22, 1955

AERONAUTICS

Brakes For Jet Planes

► JET PLANES may soon be able to land on runways only one-third as long as those now needed. The National Advisory Committee for Aeronautics has been experimenting with new type, built-in brakes for jet aircraft known as thrust reversers.

Engineers of the Government's top air research group outlined to a meeting of the Society of Automotive Engineers in Los Angeles the progress being made on the revolutionary method for slowing down jet aircraft during landings and braking them in mid-air.

The reversers scoop up the jet blast, diverting it in the opposite direction. The devices can potentially reduce ground roll on landing far more efficiently than the parachutes widely used today. The 'chutes pop open when the plane hits the ground to bring it to a quicker stop.

The long landing approach needed by today's speedy jets has been a problem to the military, especially in aircraft carrier operation.

Thrust reversers, which are not yet used in today's jets, must be reliable, free of interference with normal engine operation. They must also have low drag during high speed flight, and at least a 40% thrust reversal.

Two promising types have emerged from the research, John H. Povolny and Jack G. McArdle of the NACA Lewis Flight Propulsion Laboratory said.

In the "target" thrust reverser, a physical obstacle is placed in the jet backwash to divert the onrushing gases. Just as when you blow into an empty soup bowl, the wind returns to your face, the NACA bowl-shaped reverser turns back the jet backwash. Another successful configuration is a trough-shaped diverter. "Target" attachments have produced thrust reversals as high as 80%, but practical considerations limit the efficiency to 55%, the researchers said.

In the "cascade" reversers, banks of circular scoops placed in the tail pipe or outside the nozzle have been tested successfully. This type produces reverse thrusts as high as 75%.

Thrust reversers that have only two settings, on and off, as well as those that can produce varying degrees of braking have been tested. The latter type could be used to slow down a plane coming in for a landing as well as for braking the craft on the ground. Or it could help slow down the plane during aerial maneuvers.

Science News Letter, October 22, 1955

Each link of the aircraft carrier U.S.S. Forrestal's anchor chain weighs 360 pounds.

A summer thunderstorm has considerably more energy than any known H-bomb, yet it has no effect on the overall weather pattern of the world.

MEDICINE

Virus Spread From Cell to Cell Found

► A CLUE to the puzzling mystery of how virus infections spread from one living cell to another has been found by University of California scientists.

The researchers report, in the *Proceedings of the Society for Experimental Biology*, the discovery of an enzyme of a type which may play a key role in the mechanism of virus spread in the body.

Their discovery came as they were working with the simplified model scientists have used in the past to obtain much of their new information about viruses. Their "guinea pigs" were bacteria, and the infectious agents were bacteriophage, the viruses which prey on bacteria.

Scientists long have known that bacterial cells infected with these viruses eventually explode, spilling out viruses which then invade other cells.

Reasonable explanations of the explosive process, which permits the spread of the infection, have been lacking.

The Berkeley scientists' discovery came by accident. Between experiments they stored virus-infected cells in a refrigerator, which should have suspended virus activity. But the scientists noted that batches of the cells were exploding—and prematurely—in the refrigerator.

Investigation showed that the cells contained a new enzyme, which they called virolysin. Experiments demonstrated that the virus stimulates the formation of the enzyme in the infected cell and thus causes the cell to explode.

The new enzyme is a cousin of the autolysins, a group of enzymes found in normal cells which dissolve the cells after they die. Substantial differences were found, however.

The findings may prove important in concepts about the spread of virus infections in man. Studies with bacterial viruses often have disclosed new information that has been applicable to human infections.

The scientists responsible are Drs. Doris J. Ralston, Beatrice S. Baer, Miriam Lieberman and A. P. Krueger.

Science News Letter, October 22, 1955

SURGERY

Stick to Falsies, Plastic Surgeons Say

► WOMEN SEEKING the "all-American bosom" had better wear falsies. Operations for improving breast contours by implanting plastic sponge or other material are frowned on by the American Society of Plastic and Reconstructive Surgery meeting in Atlantic City, N. J.

Eighty-seven percent of the plastic surgeons who replied to a questionnaire stated that they had never used plastic materials placed in breast tissue to enlarge the contour. Out of 23 doctors who had used polyvinyl sponge or other substances, 13

had discontinued their use after finding the technique unsatisfactory.

Many doctors who did not use foreign implants in the breast themselves reported that they had removed implants inserted by others, because the material had extruded, or the breast had become infected or drained persistently.

All of the doctors who have observed these foreign implants noted that the final result was a hard marble-like structure within breast tissue.

Findings of the survey were reported by Dr. Lyndon A. Peer of St. Barnabas Hospital, Newark, N. J., chairman of the society's committee on inorganic implants which conducted the survey.

Science News Letter, October 22, 1955

AERONAUTICS

Phasing Props Will Reduce Cabin Noise

► QUIETER and smoother long distance flights may be on the way with an experimental propeller synchronizing system described in Los Angeles.

The method cuts out the rumbling, beating noise that annoys so many passengers. It also reduces the actual cabin noise.

Tests on the four-engine Lockheed Super Constellation have shown that not only the relative propeller speeds, but also the relative position of the props as they spin determines the noise level in the cabin. The two right engines running together at the same speed made less noise when they were 60 degrees out of phase.

Ideal phasing can cut the noise level in the cabin 15.5 decibels from an unfavorable phasing, quite a considerable figure.

Practically all the noise reduction is in the low tones from 75 to 150 cycles per second. This is the noise most difficult to muffle by insulating the cabin, G. E. Sanderson of the Lockheed Aircraft Corporation told the Society of Automotive Engineers.

In a few minutes passengers can get used to a bass noise if it remains at the same loudness. But if the bass tones "beat" or get alternately louder and softer, the sound becomes quite irritating. The phasing would eliminate the "beat." The system would be especially useful in climbs and during acceleration.

That phase as well as engine speed played a part in noise level was discovered independently, it was learned, by pilots flying Pan American's Pacific routes in Boeing Stratocruisers. As with most multi-engine planes today, the props of this giant craft are kept spinning at the same speed automatically. By trial and error, the pilots found that if they "toggled" one engine at a time, that is, cut it off instantaneously to change its phase with respect to the other engines, the ride would be quieter. The quietness remained until the engine drifted out of ideal phasing again. The pilots reported that passengers noticed the difference when the propellers were phased.

Science News Letter, October 22, 1955

IN SCIENCE

MEDICINE

Polio Runs Through Family Like Measles

► POLIO INFECTION is "as contagious as measles" among susceptible persons in a family setting, three scientists at Yale University School of Medicine declare.

By the time a case of polio occurs in a family, virtually all other members of the family who are not immune through previous exposure and infection have become infected, whether or not they develop symptoms.

Evidence for this contagiousness of polio infection came from a study the Yale scientists made of a 1952 epidemic in Ohio.

They studied 91 contacts of polio cases, making virus isolations and also determining the presence or absence of antibodies to see whether or not the contact was immune to the infection.

Among non-immunes under 15 years of age, the infection rate was 100% for members of the family and 87% for daily companions such as schoolmates, neighbors and the like.

Paralytic polio, it has been said, "breeds" paralytic polio, and infections without symptoms in the population at large breed infections without symptoms. This saying was also borne out by the Yale study.

The scientists, Drs. Dorothy M. Horstmann, Robert W. McCollum and Anne D. Mascola, report their findings in the *Journal of Clinical Investigation* (Oct.).

Science News Letter, October 22, 1955

MEDICINE

Some Get Tense On Relaxing Drugs

► SEDATIVE DRUGS which usually create relaxation and mild drowsiness make some persons get very nervous, tense and unhappy, Dr. Louis Lasagna of Johns Hopkins School of Medicine, Baltimore, reported at the Academy of Psychosomatic Medicine meeting in New York.

The ones who relax under the sedative drugs are those with well-adjusted personalities and confidence in the doctor.

Those who get the opposite effect are basically anxious, apprehensive persons afraid of being "victimized" by the drug. They are afraid it will make them feel relaxed and sleepy in spite of themselves.

The pep-up drug, amphetamine, has its stimulating effect only on persons trying to achieve desirable life's goals, Dr. Lasagna reported. It made drifters with no goals feel tense and anxious.

Dr. Lasagna's findings were made in studies on paid volunteers.

Science News Letter, October 22, 1955

THE FIELDS

PSYCHOLOGY

More Girls Than Boys Think Teens Best Years

➤ MORE GIRLS than boys think the teens are the best years of their lives, Dr. Frances M. Wilson of the New York City Board of Education reports in *Mental Hygiene* (July).

The reasons: Boys in their teens are afraid of being "trapped by a dame." Many more boys have passed through a period of maladjustment and have thus had sapped from them some of their energy to enjoy life.

Girls in their teens are happy because: 1. they find conquest of the male an exciting experience; 2. they know they are physically attractive and enjoy this whereas the teen-age boy often "views his appearance somewhat dimly."

Teen-age girls look forward to their twenties when they hope to achieve the young wife status but they are afraid they will be "trapped" by the demands of home-making, motherhood or the dual responsibility of working and keeping a house.

Teen-age boys look forward to their twenties as the period when the chase by girls will have ended and the period when they will have proved their ability to establish and provide for their own homes and families.

The "excitement of science," of new knowledge each day in physics, makes the teen years the best for many adolescents, however, particularly the able students.

Science News Letter, October 22, 1955

CHEMISTRY

New Antibiotic Fights Fungi of Man, Plants

➤ A POWERFUL ANTIBIOTIC that attacks fungus diseases of man and useful plants has been discovered in organisms that live in the soil of the Philippine Islands.

Laboratory experiments have shown the new antibiotic, called filipin, to be effective against at least 13 human pathogenic fungi. And what may become even more important in the long run, filipin strikes at a long list of fungi that destroys man's food crops.

Filipin has shown no activity against bacteria in the tests, however.

Experimental work on the new antibiotic was a joint project between the horticultural and chemical departments of the University of Illinois, at Urbana, and the Upjohn Company of Kalamazoo, Mich. Drs. Alfred Ammann, David Gottlieb and Herbert E. Carter of the University and Drs. George B. Whitfield and Thomas D. Brock of the Upjohn Company reported the research in

the *Journal of the American Chemical Society* (Sept. 20).

Filipin appears to belong to a new family of antifungal agents, the scientists said, though it closely resembles another fungicide, fungichromin, which was recently announced.

The antibiotic was isolated from a previously unreported soil fungus from the Philippines which has been named *Streptomyces filipinensis*.

The scientists found that tomato seeds and pea seeds received protection from common seed-rotting fungi after being soaked in filipin. Gray leaf spot, a semi-tropical blight of tomatoes, was partially controlled with a spray of crude filipin, too, in laboratory experiments.

Science News Letter, October 22, 1955

GENERAL SCIENCE

Summer Biology Funds For College Faculty

➤ FOR COLLEGE FACULTY members who want to tackle some biological research problem during next summer, the Lalor Foundation in Wilmington, Del., is planning to make available 40 awards of \$900 to \$1,200.

First given last summer, the number of awards is increased 30% over last summer. The age limit is 40 years. The advanced study or research may be conducted at any institution and should employ chemistry or physics to attack problems in any field of biology.

"Younger faculty members with important teaching obligations find in many cases that the summer months between the academic years are the only uninterrupted periods available to them for carrying on fundamental research of their own choosing," C. Lalor Burdick, director of the Lalor Foundation, explained.

Applications will be received until next Jan. 14 at the foundation's offices, 4400 Lancaster Pike, Wilmington 5, Del.

Science News Letter, October 22, 1955

MEDICINE

Artificial Kidney Takes Poisons From Blood

See Front Cover

➤ IN ACUTE emergencies, when the human kidney is unable to function, a machine can take over the organ's job. The device filters out the waste products in the blood and returns the cleansed blood to the system.

A close-up of the stainless steel drum and continuous cellophane tubing of the Georgetown University artificial kidney machine is shown on the cover of this week's *SCIENCE NEWS LETTER*. About the size and appearance of sausage casing, the cellophane tubing carries the patient's blood during surgery. The mechanical device works ten to 40 times faster than two human kidneys.

Science News Letter, October 22, 1955

MEDICINE

20,000 Needless Cancer Deaths in Next Year

➤ TWENTY THOUSAND women will die needlessly of cancer in the next 12 months.

The prediction is from estimates reported by Dr. Cecile L. Fusfeld, Washington, D. C., in *GP* (Oct.), official journal of the American Academy of General Practice.

The 20,000 are among the 25,000 women who will be killed by cancer of the reproductive tract in the 12-month period. Early detection could have saved the 20,000, Dr. Fusfeld states.

Cancer of the cervix, or neck of the womb, may be discovered even before the patient senses any of the warning signs, Dr. Fusfeld points out. She reports finding 11 such cases in examining 2,699 patients in whom there were no clinical signs of malignancy.

Dr. Fusfeld doubts that a diagnosis of cancer would have been made so early in any of these cases if the vaginal smear had not been a routine part of the physical examination.

Because the cancer was caught so early, operation to remove the womb which was the usual course of treatment took care of the condition.

Science News Letter, October 22, 1955

MEDICINE

Detect Head or Neck Cancer With Needle

➤ CANCER of the head or neck can be detected by a needle method instead of a cutting method, five New Jersey doctors reported at the meeting of the American Society of Clinical Pathologists in Chicago.

The five are: Drs. William G. Bernhard, W. Franklin Keim, Harold Grubin, Gerhard W. Sewekow and Helmut F. Wanner of the Hospital of Saint Barnabas, Newark, N. J.

By their method a local anesthetic is first applied to the skin over the region of a suspected cancer. Then a slender hollow needle attached to a plunger is inserted into the diseased area. When the needle is withdrawn it brings out a small quantity of diseased tissue in its hollow center. This tissue is examined under the microscope to determine whether the condition is cancer or something else. Ordinarily a bit of tissue for such examination has been cut out with a surgeon's knife.

The technique permitted the doctors to diagnose cases of actinomycosis of the jaw and other suspicious inflammatory conditions and cysts as being of a non-cancerous variety.

In cases involving cancerous or non-cancerous conditions of the lymph nodes, salivary glands, thyroid gland, lungs, breast, mouth, and jaws, their accuracy in confirming an original diagnosis averaged 82%.

Science News Letter, October 22, 1955

ASTRONOMY

Venus Makes Appearance

Brilliant planet can be seen at dusk on November evenings. Mars and Jupiter are visible later in the night. Mid-November is the time to observe meteors of the Leonid shower.

By JAMES STOKLEY

► FOR THE first time this year, the brilliant planet Venus is entering the evening skies. Visible last spring and early summer as a morning star before sunrise, it has now swung around behind the sun and is now beginning to be visible just after sunset.

So look toward the southwest during November as dusk is gathering, and low in the sky you may get a glimpse of this brilliant orb, which will become very prominent during the winter and spring. On Nov. 1 it sets about three-quarters of an hour after the sun, but by the end of the month its eastward movement will cause it to pass below the horizon about an hour and a half after sundown. Then, of course, it will be easier to see.

Venus is not shown on the accompanying maps of the evening skies, since these are drawn for a later hour—about ten o'clock, your own kind of standard time, at the beginning of November, nine o'clock in the middle, and eight at the end. In fact,

no planet is shown on the maps, since the others that are visible come up later.

Vega, to the northwest, is the brightest star shown and it stands in the constellation of Lyra, the lyre. Just above it is the northern cross which forms part of Cygnus, the swan. First-magnitude Deneb is at the head of the cross. To the left of Vega is Aquila, the eagle, in which Altair shines.

Well up in the eastern sky is Aldebaran, in Taurus, the bull, a star that has a distinctly reddish color. Coming into view below it is the constellation of Orion, the warrior, which will shine so brilliantly in the south on evenings of late winter.

The three stars in a vertical row form Orion's belt while Betelgeuse is the star at the left, and Rigel the one to the right. Both are of first magnitude, although their brightness is somewhat dimmed because of their low altitude and the greater thickness of atmosphere through which their light has to pass before it reaches our eyes.

Still farther to the left, and about the same height as Orion, we find Gemini, the

twins. The brightest star in this group, Pollux, is another of the first magnitude dimmed by its lowness in the sky. Above the Gemini, one comes to Auriga, the charioteer, with brilliant Capella.

Turning toward the north, the great dipper, in Ursa Major, the larger bear, is seen on the horizon, at its poorest position of the year. But high above stands Cassiopeia, the queen, whose stars now form a letter M. A little lower, to the left, is Cepheus, the king, while above Cassiopeia is Andromeda, the princess, their daughter.

To the right, and just above Auriga, is Perseus, the great hero who saved Andromeda from the sea monster who was about to devour her, in the ancient myth.

Although this group contains no stars of the first magnitude, it does contain one very interesting object in Algol, the "demon star," a famous variable, whose light is dimmed every few days as a faint companion partially eclipses the brighter one.

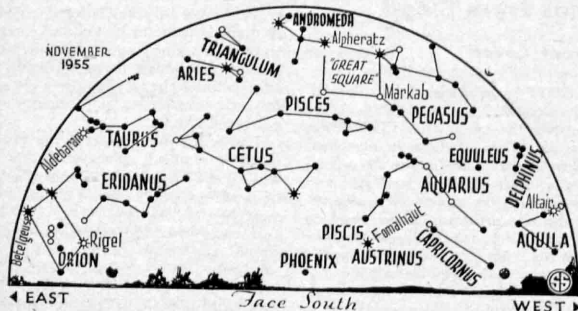
In addition to Venus, three other planets may be seen later in the night. Jupiter, almost as brilliant and now in the constellation of Leo, the lion, rises in the east about 12:30 a.m. at the first of November, and around 10:45 p.m. at the end. Mars appears still later—two to three hours ahead of sunrise, but it is now very distant and faint, of the second magnitude.

And finally, for the first few days of the month, Mercury will be visible low in the east, rising about an hour and a half before the sun and shining brighter than a first-magnitude star.

The middle of November will be a particularly good time to observe meteors of the Leonid shower, since the mood, whose brightness sometimes interferes, will be out of the way. Late in the evening, particularly after midnight, meteors or "shooting stars" will be seen to the east, which seem to radiate from Leo, the constellation in which Jupiter is now located. They may come as fast as one every ten minutes when the maximum is reached on No. 16.

The fact that they all seem to come from a point in Leo, from which comes the name of the shower, is an effect of perspective. Actually these meteors, most of which are no larger than the head of a pin, are moving through space in parallel paths.

When they encounter the atmosphere of the earth, friction slows them and they are completely burned up, making the flash



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of light which we see. The glowing trails they leave as they expire are also parallel, but seem to converge in the distance in the same manner as railroad tracks do.

These meteors are scattered along a huge elliptical track, which the earth crosses every November, and that is why we see them now.

In addition, there are other showers, moving in similar paths, which we encounter at other times of year. At one point the Leonids are very concentrated, and when we hit this cluster in 1833 there was such a large number of meteors that they seemed to be falling like snowflakes. Thirty-three years later, in 1866, this denser portion had moved all the way around, and the earth encountered it once more, and another fine shower resulting.

Still another was expected about 1899 or 1900, but failed to appear, because the meteors had been switched aside in the meantime by the pull of the planet Jupiter.

Again in 1932-3 astronomers carefully watched, but again were disappointed. But along the rest of the path there are meteors that still reach us, and some of those will be seen this year.

An eclipse of the moon is another event on the celestial program for November, but it will not be seen in the United States or southern Canada. It will be visible in northern Canada and the Arctic regions,

and generally in Europe, Asia, Africa and Australia.

The eclipse occurs on Nov. 29, when the moon, then at the full phase, partially enters the shadow of the earth, and about an eighth of its diameter will be shaded. This is the second eclipse of the year, and the first of the moon. The middle of the eclipse occurs at noon, E.S.T., when the moon will not be visible in this part of the world.

Celestial Time Table for November

Nov. EST	
1 10:00 p.m.	Moon nearest, distance 224,900 miles
2 12:55 a.m.	Algol at minimum
4 9:44 p.m.	Algol at minimum
6 4:56 p.m.	Moon in last quarter
7 6:32 p.m.	Algol at minimum
11 11:47 p.m.	Moon passes Jupiter
11 8:12 p.m.	Moon passes Mars
14 7:10 a.m.	New moon
16 early a.m.	Leonid meteors
16 1:49 a.m.	Moon passes Venus
16 6:00 p.m.	Saturn in line with sun
17 6:00 p.m.	Moon farthest, distance 252,300 miles
22 12:29 p.m.	Moon in first quarter
24 11:26 p.m.	Algol at minimum
27 8:15 p.m.	Algol at minimum
29 11:50 a.m.	Full moon
30 6:00 a.m.	Moon nearest, distance 222,300 miles
5:04 p.m.	Algol at minimum

Subtract one hour for CST, two hours for MST, and three for PST.

Science News Letter, October 22, 1955

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PSYCHOLOGY

Drugs No Help When Patient Likes Sickness

► SO-CALLED modern miracle drugs may fail when prescribed for patients who enjoy "comfortable ill-health." In fact such a patient will avoid taking any medicine unless assured in advance that it will not cure his chronic ailment.

This example of how medicines may fail because the doctor and the patient have opposite goals was given by Dr. William Kaufman of Bridgeport, Conn., in his presidential address before the Academy of Psychosomatic Medicine in New York.

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To another kind of patient, drugs are a "magic talisman" which he hopes will give him the "particular something he needs to compete successfully with others." This is the patient who finds it hard to reach his social, job, economic or sexual goals. Such a person, Dr. Kaufman warned, easily becomes addicted to alcohol, barbiturates and narcotic drugs such as morphine.

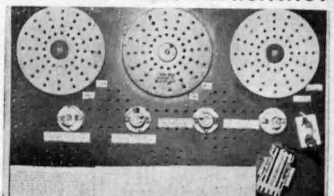
Patients with chronic sickness may rebel at the sickness or at the medicine which has been helping though not curing him. For example, diabetics who have taken insulin for years may suddenly stop taking the insulin, as though to deny that they have diabetes. This, Dr. Kaufman explained, may also be a symbolic attempt at suicide. Such an attempt may be made in the reverse direction by taking an overdose of a necessary medicine.

To avoid such situations, Dr. Kaufman advised doctors to consider the kind of person a patient is as well as the kind of sickness he has and the kind of medicine prescribed.

Some doctors, Dr. Kaufman said, are too conservative to use the newest drugs; other doctors are too eager to do so. The wise doctor, Dr. Kaufman said, will consider the psychomatic needs of each patient before administering a drug.

Science News Letter, October 22, 1955

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Books of the Week

For the editorial information of our readers, books received for review since last week's issue are listed. For convenient purchase of any U. S. book in print, send a remittance to cover retail price (postage will be paid) to Book Department, Science Service, 1719 N Street, N.W., Washington 6, D. C. Request free publications direct from publisher, not from Science Service.

ATOMIC ENERGY: A Constructive Proposal—David Shea Teeple—Duell, Sloan and Pearce and Little, Brown, 165 p., illus., \$3.00. The author, who has served in positions related to atomic energy in many agencies of the Government, proposes a new executive department in the Cabinet devoted to atomic energy.

ATOMIC ENERGY: A Realistic Appraisal—Edwin A. Wiggins, Ed.—Atomic Industrial Forum, 192 p., illus., paper, \$5.00. Based on an evaluation of the atomic industry made by representatives of industry.

BIBLIOGRAPHY OF INTERLINGUAL SCIENTIFIC AND TECHNICAL DICTIONARIES—UNESCO (Columbia University Press), 178 p., paper, \$1.75. A list of 1,629 bilingual or polyglot dictionaries under 237 subject heads and 75 languages. The bibliography is written in English, Spanish and French.

MODERN TRAFFIC CONTROL—Joseph C. Ingraham—Funk & Wagnalls, 312 p., illus., \$4.50. Discussing methods of improving traffic safety.

NATIONAL VITAMIN FOUNDATION REPORT TO THE BOARD OF GOVERNORS BY THE SCIENTIFIC DIRECTOR—Robert S. Goodhart—National Vitamin Foundation, 85 p., paper, free upon request direct to publisher, 15 East 88th St., New York 22, N. Y.

NATURAL AVAILABILITY OF OAK WILT INOCULA—E. A. Curl—Illinois Natural History Survey, Bulletin, Volume 26, Art. 3, 48 p., illus., paper, limited number free upon request direct to publisher, 172 Natural Resources Building, Urbana, Ill. Report of information gathered to explain the spread of a destructive tree disease.

DO PEOPLE "EXPLODE" IN YOUR OFFICE?

ARE you, as a business executive, a skilled "human chemist"—good at handling your fellow-workers and in getting them to work well with each other? Or do people "explode" in your office—or in their contacts with some of their associates?

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Simply clip this ad, attach it to your letter-head or a sheet of paper with your name and address, and enclose \$1. Your copy of *The Executive as a Human Chemist* will be mailed you promptly. (Special offer: 10 copies for \$7.50.) THE PUBLISHER, SCIENCE SERVICE, 320 Harwood Bldg., Scarsdale, New York.

THE NEW GRASSLAND-LIVESTOCK HANDBOOK—Revision by the Joint Committee on Grassland Farming—University of Oklahoma Press, 48 p., illus., paper, 50 cents. A new and revised edition of a popular handbook.

PAPERS PRESENTED AT THE 1954 SANITARY ENGINEERING CORROSION CLINIC—George Illig and others—Virginia Polytechnic Institute, Engineering Experiment Station Series No. 102, 32 p., paper, 25 cents.

PARENTS ON THE RUN: A Common Sense Book for Today's Parents—Marguerite and Willard Beecher—Julian, 238 p., illus., \$3.50. Intended to encourage parents to face up to the problem of preparing their children for a useful, worthwhile life.

PREHISTORY AND PLEISTOCENE GEOLOGY IN CYRENAICA LIBYA: A Record of Two Seasons' Geological and Archaeological Fieldwork in the Gebel Akhdar Hills, With a Summary of Prehistoric Finds From Neighbouring Territories—C. B. M. McBurney and R. W. Hey—Cambridge University Press, 315 p., illus., \$10.00. Study of the alternate cliffs and terraces of this region has provided evidence of the behavior of the sea level in ancient times and of occupation by man since the Old Stone Age.

THE PRESIDENT'S REVIEW FROM THE ROCKEFELLER FOUNDATION ANNUAL REPORT 1954—Dean Rusk, President—Rockefeller Foundation, 145 p., illus., paper, free upon request direct to publisher, 49 West 49th St., New York, N. Y. Describing current research and fellowship programs.

REPTILES OF ILLINOIS—Paul W. Parmalee—Illinois State Museum, Popular Science Series, Volume V, 88 p., illus., paper, 50 cents. An aid to identification.

A REVIEW OF THE UPPER EOCENE ARTIODACTYLA OF NORTH AMERICA—C. Lewis Gazin—Smithsonian, 96 p., 18 plates, paper, \$1.60. Based for the most part on dental characters.

REVISION OF THE HAWAIIAN MEMBERS OF THE GENUS TETRAPLASANDRA A. GRAY—Earl Edward Sherff—Chicago Natural History Museum, Fieldiana: Botany, Volume 29, Number 2, 94 p., paper, \$1.50.

SCHOOL SHOP—LEARN SAFE WORK HABITS HERE! A Safety Guide for Pre-Employment Training—Govt. Printing Office, Office of Education and Bureau of Labor Standards, 15 p., illus., paper, 10 cents. Providing the vocational teacher with a direct approach to students.

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SOCIETY: Collective Behavior, News and Opinion, Sociology and Modern Society—Robert Ezra Park, edited by Everett C. Hughes and others—Free Press, 358 p., \$5.00. Volume III of the collected works of a sociologist who began his career as a newspaperman.

SPOTLIGHT ON THE WORKER: New Approaches to Personnel Problems—Robert L. Thorndike and others—American Management Association, Personnel Series No. 163, 44 p., paper, \$1.75. Discussing such matters as testing of employees, how to treat the problem drinker, and pastoral counseling in industry.

STATISTICS OF STATE SCHOOL SYSTEMS: ORGANIZATION, STAFF, PUPILS, AND FINANCES 1951-52, Chapter 2—Samuel Schloss and Carol Joy Hobson under direction of Emery M. Foster—Govt. Printing Office, Office of Education, 105 p., paper, 35 cents.

THE STORY OF MAN AND THE STARS—Patrick Moore—Norton, 246 p., illus., \$3.95. A history of astronomy from the days of the cave men.

THE STRANGE WORLD OF NATURE—Bernard Gooch—Crowell, 160 p., illus., \$3.00. To study nature, the author points out, it is not necessary to travel to the far corners of the earth, it is only necessary to open the front door or to look out a window.

URANIUM AND OTHER MIRACLE METALS—Fred Reinfield—Sterling, 128 p., illus., \$3.50. A book for prospectors and "Sunday prospectors" as well as others interested in the background of the split atom.

WILD AMERICA: The Record of a 30,000-Mile Journey Around the Continent by a Distinguished Naturalist and his British Colleague—Roger Tory Peterson and James Fisher—Houghton Mifflin, 434 p., illus. by Roger Tory Peterson, \$5.00. On the trip described here, a noted ornithologist and artist show American wildlife to an English colleague and see it anew through the visitor's eyes.

THE WORLD WE LIVE IN—Editorial Staff of Life and Lincoln Barnett—Time (Simon & Schuster), 304 p., illus., \$13.50. A magnificently illustrated reference book for the home. A compilation of 13 articles that originally appeared in Life Magazine, covering seven sciences related to the earth and its contents.

Science News Letter, October 22, 1955

HOW TO TRAVEL—and get paid for it

There's a job waiting for you somewhere—on a ship, with an airline, in overseas branches of American firms, in foreign firms overseas—even exploring if you're adventurous.

The full story of what job you can fill is in Norman Ford's new book *How to Get a Job That Takes You Traveling*. Whether you're male or female, young or old, whether you want to travel and get paid traveling or just hanker to roam the world for a short year or so, here are the facts you want, complete with names and addresses and full details about the preparations to make, the cautions to observe, the countries to head for.

You learn about jobs in travel agencies (and as tour conductors), in importing and exporting concerns, with mining and construction companies. Here's the story of jobs in the Red Cross and the UN organizations, how doctors get jobs on ships, the almost sure way for a young girl to land a job as a airline hostess, the wonderful travel opportunities if you will teach English to foreigners and the fabulous travel possibilities for those who know stenography.

"Can a man or woman still work his or her way around the world today?" Norman Ford asks in his book as you might ask today. And he replies in 7,000 words of facts. "The answer is still a very definite Yes!"

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Your individual exhibit?

Plan it *early*, developing your project as the months advance until it is dynamic . . . dramatized to command the attention it merits. If you want ideas for an exhibit, ask your teacher, who can get this information free by affiliating her club with Science Clubs of America, the largest scientific organization in the world.

Civic-minded organizations will cooperate enthusiastically

The pattern of previous years has shown that universities, colleges, newspapers, scientific societies, civic groups and industry have worked whole-heartedly with the young people and educators in their communities. In the Sixth National Science Fairs 71 regions of the United States were represented in Cleveland . . . and many new areas, to date, have contracted to join the seventh event.

Awards to National Science Fair Finalists

Each boy and girl awarded the trip to Oklahoma City by a cooperating fair will be presented with a silver medal decorated on the face with a gold SCA insignia; the reverse engraved with the year, the finalist's name and that of the sponsoring organization. And—the schools of the contestants will be given Certificates of Award embossed with a facsimile of the beautiful medal.

"Wish-awards" will be given the young entrants with top ranking exhibits; four Firsts . . . \$125, four Seconds . . . \$75, four Thirds . . . \$50. 25% of the remaining finalists will receive \$25 awards. These awards are in scientific material, equipment, books, etc., to further the education of the young participants.

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Many privileges will be extended to the Official Party—finalists and accompanying adults—by the Frontiers of Science Committee of the Oklahoma City Chamber of Commerce, the University of Oklahoma, Tinker Air Force Base, Oklahoma Medical Research Foundation, Armour & Company and Wilson & Company, the Oklahoma City and West Edmond Oil Fields, WKY-TV, Oklahoma Historical Society Museum and the Southwestern Bell Telephone Company.

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➤ NOTHING WILL put a quail hunter into a slow burn quicker than to have a well-trained, experienced bird dog make a beautiful point—on a box turtle. This is far from a rare happening, and the pointer or setter who finds himself so deceived usually backs away in canine humiliation.

Whether box turtles have an odor similar to quails or whether they have their own special point-provoking scent has not been determined. In either event, hunting dogs find it hard to resist a box turtle.

While bird dogs seem willing to forget and forgive these experiences as soon as possible, hounds make an issue of a box turtle find. They often carry box turtles for long distances, gnawing at them ineffectually from time to time, and finally burying them in some choice spot. Their delight in the capture of box turtles often destroys the usefulness of individual hounds as deer hunters, since they may spend more time after the lowly reptiles than the object of the chase.

However, automobiles and forest fires are the major killers of adult box turtles; and if they get by these hazards safely, they may live to the ripe old age of 60 to 80 years. Some few probably reach the 100-year mark.

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What are the secrets of attaining a long life? Well, if he could speak, the box turtle would probably advise you to take it easy, sleep a lot, stay close to home and don't stick your neck out—for this is what he does.

It takes a lot to excite a box turtle. In general he is content to live and let live, although he may become incensed enough at breeding time to struggle briefly with another male interested in his mate. When it gets too hot in summer, the box turtle crawls into a shallow hole in a cool spot to sleep it off. When it gets too cold in winter, he crawls into a deeper hole and sleeps that off too.

The box turtle is a home body, and rarely wanders more than half a mile from home base. On the average he probably spends most of his adult life within an area of 250 yards diameter.

As for sticking his neck out, why should he? For when he pulls his neck in, closing the opening with the movable bottom part of his shell, he is as vulnerable to attack as a piece of stone.

Science News Letter, October 22, 1955

Questions

AERONAUTICS—How are engineers planning to brake planes more efficiently on the landing field? p. 263. ☐ ☐ ☐

ASTRONOMY—What is the Leonid shower? p. 266. ☐ ☐ ☐

CHEMISTRY—What is the name of the new antibiotic found in the Philippine Islands? p. 265. ☐ ☐ ☐

MEDICINE—What is the chemical in Liverpool atmosphere that is believed to cause lung cancer? p. 263. ☐ ☐ ☐

METEOROLOGY—How much sodium was used to make the C-shaped cloud? p. 259.

How fast does the Signal Corps' new "express" weather balloon rise? p. 262. ☐ ☐ ☐

Photographs: Cover, Ciba Pharmaceutical Products, Inc.; p. 259, University of California; p. 262, Army Signal Corps Engineering Laboratories; p. 272, Bakelite Company.

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GENERAL SCIENCE

Head Cold Is Hazard in Air Control Tower Men

► AIRPORT CONTROL tower operators and others who must make their speech understood clearly should be relieved from duty when they have a head cold or when their nasal passages are obstructed by hay fever or for any reason.

This conclusion is indicated by research conducted by Drs. Henry M. Moser, John J. Dreher and Sol Adler of Ohio State University.

Both nasal speech and speaking with the nasal passages obstructed make it difficult for the listener to understand, they found. Nasal speech, as when a Frenchman or other foreigner speaks English, is difficult to understand whether or not the voice is in competition with a high level of noise. The head cold seems to cut down on intelligibility, particularly when the noise level is mild.

Nasal speech and also the opposite effect can be produced voluntarily or by habit, by closing or opening wider the passage from the throat into the nose.

Consideration should be given, the investigators conclude, to the hazards that might result when speakers in critical communications are allowed to continue their duties while hampered by obstructed nasal passages. Americans working in international communications may have difficulty in understanding foreigners even when they speak English, they point out.

The investigation is reported in the *Journal of the Acoustical Society of America* (Sept.).

Science News Letter, October 22, 1955

Two California counties, Santa Barbara and Ventura, now produce more than one-fourth of all the lemons grown in the world.

One species of giant toad can squirt its deadly poison 12 feet; it can devour rats and mice.

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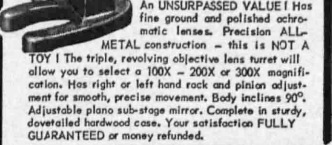
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• New Machines and Gadgets •

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ROOM DIVIDER is made by the do-it-yourself couple with colorful two-faced, diamond-shaped leather panels. The panels are laced to a lightweight aluminum frame. The leather room divider is eight feet tall, four feet wide and one inch thick when completed. Diamonds are available in six colors.

Science News Letter, October 22, 1955

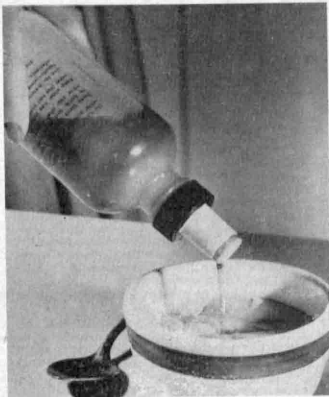
NON-SLIP SOLES designed for infants' shoes are packaged together with rubber cement capsules. With the kit, a mother can sole her babies' leather shoe bottoms to make them safer.

Science News Letter, October 22, 1955

PENCIL GRADE, called the first ever manufactured, is a number one and one-half designed for businessmen. Softer and blacker than grade two and longer lasting than grade one, the new pencil can be used safely on onion skin paper and newsprint.

Science News Letter, October 22, 1955

TEASPOON POURER is a new type of bottle top that automatically measures out only one teaspoonful of medicines, shampoos, light syrups or other liquids at a time. Molded of plastic, the dispenser, shown in the photograph, is self-cleaning. Pouring



three times with the dispenser is equal to a tablespoon.

Science News Letter, October 22, 1955

PORTABLE SPEEDOMETER tells the skipper how fast his boat is going. A clear tube made of plastic, the speedometer is

marked from five to 35 miles per hour. In operation, the smaller end of the tube with an inlet is submerged. The meter is taken from the water and the speed read.

Science News Letter, October 22, 1955

CIGARETTE LIGHTER for dashboard is described as a device that actually breathes and puffs for the driver. Installed in conventional automobile lighter sockets, a driver inserts an unlighted cigarette into the device, presses a button, and the cigarette is lighted.

Science News Letter, October 22, 1955

HAND COMPARATOR for judging surface roughness of mass-produced parts permits metal surfaces to be compared. A pocket-sized, hand-held instrument, the comparator operates on a unique optical principle that illuminates both the known standard and the study piece.

Science News Letter, October 22, 1955

STRAIGHT LINE GUIDE, made of plastic and grooved, now makes it possible for both the amateur and professional seamstress to sew straight. The panel has grooves cut in quarter-inch graduations for desired seam widths. The attachment will fit all sewing machines.

Science News Letter, October 22, 1955

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Do You Know?

Three well directed H-bombs could knock out 20% of America's chemical process plants.

Two-hundred-foot-long "cork screws" bore into hillsides and bring out coal that can be reached in no other way.

An Englishman named James Sharp manufactured the first gas range in 1832; previously cooking with gas had been confined to gas rings or gas jets.

Accidents among school-age children currently cause about 6,000 deaths yearly in the United States.

The Bureau of Public Roads expects 50,954,000 cars to be registered this year, 5% more than in 1954 and 95% more than in 1939.

At midday on the moon, the temperature is close to 240 degrees Fahrenheit but at moon's midnight it drops to about 250 degrees below zero.