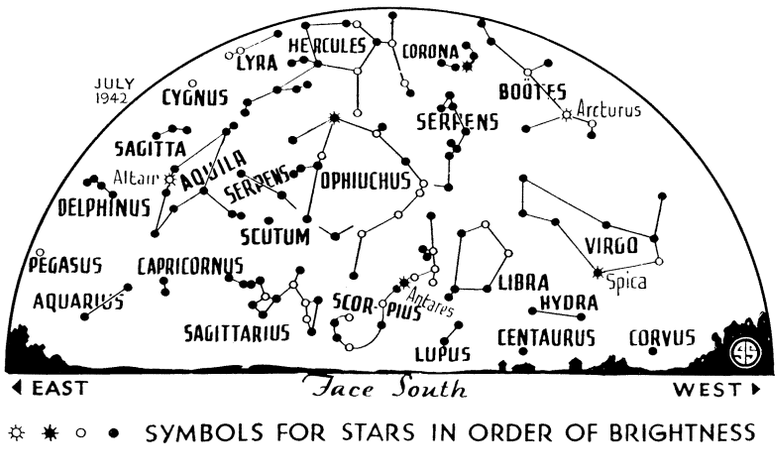
Scutum, the shield, which represented the shield of the Sobieskis, the ruling family of Poland; Canes Venatici, the hunting dogs; Leo Minor, the lesser lion, and Lacerta the lizard, are those indicated on the maps. Another is Vulpecula, the fox, which is not shown, but lies just above Sagitta, the arrow. A sixth is Sextans, the sextant, now below the horizon and near Leo. Hevelius also introduced Cerberus, the three-headed monster, which he had Hercules holding. This alone of the seven is not recognized today; its stars are now included in Hercules.



Celestial Time Table for July

Friday, July 3, 7:00 p.m., Venus passes Saturn. Sunday, July 5, 4:58 a.m., Moon in last quarter; 8:00 p.m., Earth farthest from sun, 94,421,000 miles. Monday, July 6, 6:00 a.m., Mercury farthest west of sun, visible for a few days about now before sunrise. Thursday, July 9, 4:39 p.m., Moon passes Saturn. Friday, July 10, 7:13 a.m., Moon passes Venus; 8:00 p.m., Moon farthest, distance 252,500 miles. Saturday, July 11, 11:30 a.m., Moon passes Mercury. Sunday, July 12, 6:01 a.m., Moon passes Jupiter. Monday, July 13, 8:03 a.m., New moon. Wednesday, July 15, 7:46 p.m., Moon passes Mars. Tuesday, July 21, 1:13 a.m., Moon in first quarter. Sunday, July 26, 5:00 a.m., Moon nearest, distance 223,800 miles. Monday, July 27, 3:14 p.m., Full moon. Tuesday, July 28, after midnight, Meteors of delta Aquarid shower.

Science News Letter, June 27, 1942

ASTRONOMY

Teaching of Air and Marine Navigation Together Urged

Astronomer Stresses Need To Teach Subject as an Operational Routine; Use Hydrographic Office Terms

THE importance of unified and simultaneous instruction in air and marine navigation, and the importance of training college students in the operational routine of navigation rather than in old-fashioned principles were stressed by astronomers discussing the teaching of navigation at the American Astronomical Society meeting in New Haven.

Dr. John Q. Stewart, of Princeton University, said that pretraining in navigation of the better-equipped college students had received the approval of high officials in the Navy. Service schools do not have time to insure the thorough mastery of navigation operations which are essential to avoiding disaster during military maneuvers, and they are also in great need of instructors in the paperwork of navigation.

College courses on navigation should include the latest methods of air navigation along with the older marine methods, Dr. Stewart said. This is particularly important in view of the growing cooperation between surface ships and air forces, which requires mutual understanding among navigators.

"It is not necessary to have a preliminary course in trigonometry and logarithms," Dr. Stewart stated, "far less in spherical trigonometry."

He stressed that navigation must be taught as an operational routine. "Graphical methods, linear interpolations, and judgment of tolerances should be taught well," he said.

Standard Hydrographic Office terminology ought to be used by all books and teachers of navigation, regardless of whether in air or marine phases. Dr. Stewart regards it as troublesome that manuals of navigation have been written for civilian and army pilots which deviate unnecessarily from standard methods and nomenclature. He recommended that the college teacher use Bowditch, the navy aircraft manual, the maneuvering board manual, and Dutton's book on navigation.

Relative motion was stressed by Dr. Newton L. Pierce, also of Princeton, as especially important in modern warfare. Navigation also includes piloting, dead reckoning, radio navigation, celestial navigation, and problems. Of these, only celestial navigation is strictly astronomical, yet hundreds of astronomers are called upon to teach the entire subject in the war emergency. Their students, in turn, become instructors of civil air corps pilots, army and navy men, and in civil aeronautics courses.

"Relative motion," said Dr. Pierce, "has been under-emphasized and often badly garbled in the various texts which treat of it at all. It is true that relative motion has little use in peace time marine navigation. It is, however, of great importance in war time for fleet maneuvers, and is important at all times for the air navigator. However, this is not a subject the student easily understands, and therefore, it should receive considerable emphasis, particularly by vector solutions, which may be made easily and quickly. The Princeton astronomers recommended that the methods of solution of navigational problems used by the Service schools be followed, and that the air almanac be used in preference to the nautical almanac wherever possible.

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PUBLIC HEALTH

Health Service Officer Stricken By Rabbit Fever

DR. CHARLES ARMSTRONG, Senior Surgeon, U. S. Public Health Service, and Director of the Division of Infectious Diseases of the National Institute of Health, has been suffering from a severe attack of tularemia (rabbit fever) since May 25.

He was taken sick a few hours after arrival on an official visit to the Rocky Mountain Spotted Fever Laboratory at Hamilton, Mont., which is one of the

federal health service activities now under his direction. He did not get tularemia at the Hamilton laboratory and Public Health Service officials have no idea where he did pick up the infection. He had not been working on this disease. He is now "getting along all right" and officials are not worried about his condition.

Discovery of the cotton rat as a suitable laboratory animal for studies of infantile paralysis; discovery of the brain disease of mice and men, choriomeningitis; studies on parrot fever (psittacosis), and botulinus toxin, St. Louis and other varieties of encephalitis, dengue fever and studies leading to improved methods of vaccinating against smallpox, are among the disease-fighting achievements for which Dr. Armstrong is known.

Science News Letter, June 27, 1942

ENGINEERING

Reduction of Smoke and Smell From Diesel Engines Studied

Can Be Reduced To Insignificant Proportions By Use of Fuels of Higher Cetane Number and Volatility

OBNOXIOUS smoke and odor in the exhaust gases of Diesel engines, now increasingly used in truck and bus service, can be reduced to insignificant proportions by use of fuels of higher cetane number and higher volatility, and selection of a fuel adapted to the engine used. (The cetane number is to a Diesel fuel what the octane number is to gasoline).

This conclusion was reached, after testing 13 commercial fuels and 60 specially made up fuels in several different engines, by R. S. Wetmiller, engineer of the Texas Company, and Lieut. L. E. Endsley, Jr., formerly an engineer with the Texas Company. Their findings were reported at the meeting of the Oil and Gas Power Division of the American Society of Mechanical Engineers.

Of course the engine must be in first class condition, the engineers specified. Improper adjustments, worn or dirty fuel injectors, or any other lack of proper maintenance can completely overshadow any benefits derived from use of a premium fuel.

However, while increase in cetane number and in volatility of the fuel will diminish smoke and smell in the exhaust, they also decrease the power and economy of the engine, the engineers found. The solution must therefore be a compromise among the ends desired.

Prevention of excessive smoke and smell is especially important in view of the fact that they are worse when the engine is idling or accelerating after idling, operations that occur most frequently in our crowded city streets.

Finally, the engineers expressed hope that future engine design might obviate the necessity for "tailor made fuels" and precise maintenance.

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NUTRITION

Dehydrated Sweet Potato Added to Army's Diet

SOLDIERS from the South aren't going to be deprived of their favorite sweet 'taters even on the far side of thousands of miles of salt water. A new order for a million pounds of dehydrated sweet potatoes has been awarded to the Gilbert C. Wilson Laboratories which have just completed an initial order of 250,000 pounds for the Army. Since dehydrated vegetables take on somewhere in the neighborhood of eight or ten times their weight in water, when they are soaked up and cooked, this million-and-a-quarter pounds ought to fluff up to a fair-sized dishful for Southern boys overseas.

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PUBLIC HEALTH

Vaccination Justified for Horse Sleeping Sickness

VACCINATION of humans against horse sleeping sickness (equine encephalomyelitis) "is justified in the face of an epidemic," Dr. R. Walter Schlesinger, Dr. Isabel M. Morgan and Dr. Peter K. Olitsky, of the Rockefeller Institute for Medical Research, declare. (*Journal, American Medical Association,* June 20.)

Apparently good results have been obtained, they point out, in vaccinating horses against this disease, which last summer and fall caused more than 3,000 human cases. Similar good results might be obtained in vaccinating humans, they believe, as a result of their experiments with rabbits and mice.

The virus of this disease attacks the brain but, since it is probably spread by mosquitoes, it gets into the blood first and spends a little time there before being carried to the brain. If during this period sufficient antibodies to fight the encephalitis virus can be mobilized in the blood, damage to the brain can be prevented, the mouse and rabbit studies suggest.

Grown-up animals can make their own antibodies in time to prevent virus damage to their brains, but young ones cannot, the experiments showed. This corresponds with the observation that in humans all outbreaks of equine encephalitis except one were characterized by a relatively high occurrence of frank cases among children.

Vaccination would speed up mobilization in the blood of antibodies to fight the encephalitis virus and might therefore be expected to ward off an attack or reduce its severity.

Science News Letter, June 27, 1942

CHEMISTRY

"Laundries" Will Wash War Gases From Food

GAS ATTACKS will not destroy England's food supply. Should the Axis choose to conduct gas warfare, food "laundries" throughout the British Isles stand ready to decontaminate any foodstuffs exposed to gas. In concrete-floored, metal-equipped rooms trained civilians are ready to combat effects of any of the fourteen known types of war gases, from deadly phosgene or lewisite to relatively harmless tear gas.

In reception chambers of the laundry, staff members will trim off the outside of meats and fats. Then these and other foods will move into airing rooms. Canned foods, affected only by liquid gas, will be immersed in water treated with a bleaching agent. Each can will be indelibly coded, to identify its contents after the paper label has been washed off.

When decontaminated, food will move to a sampling room, where tests will prove its complete fitness for human consumption.

Science News Letter, June 27, 1942