

AVIATION

Giant Passenger Planes Offer Standard Electrical Gadgets

Electric Stoves and Razors and Other Devices For Comfort Were Previously Banned by Power Required

COMFORTS of home that come with standard 110-volt electricity are in store for future air travelers. This is the promise of current aviation developments.

Brief details of the construction of the XPBS-1, new experimental naval bombing seaplane built for the Navy by the Sikorsky works at Bridgeport, Conn., indicate future use of standard electrical equipment on airplanes. These devices have until now not been available because they required more power than a plane could supply.

Less strictly guarded than the newest Navy secret, but no less revealing is W. V. Boughton's forecast of the part electricity will play in future air travel. Mr. Boughton, chief electrical engineer of the Douglas Aircraft Company, will present his report at a meeting of the American Institute of Electrical Engineers, to be held at Spokane next week.

Electric lighting the equal of lighting in the home; electric stoves for serving complete meals aloft, with special light-weight pots and pans prepared to reduce the minimum losses of heat; electric razors and other devices for the passenger's comfort await principally the development of larger power supplies, Mr. Boughton declares.

Planes today depend primarily on 12-volt storage batteries and on a low-power generator driven by the engines. "The amount of electrical equipment is such that the present power supply is hardly adequate and with the increasing amount of equipment on larger planes, it is imperative that a larger source be made available," he states.

The new navy giant, the Navy Department has announced, carries a 110-volt generator, an innovation in big flying boat equipment.

Electricity already plays a prominent part in flying, Mr. Boughton reports. Electric devices ranging from electric razors to radio transmitters are found on the overnight "sleeper planes" in service on the main American lines.

Cigarette lighters, installed for passenger comfort, use more current than

electric de-icers for preventing ice from forming on the plane's wings, the lighters consuming 60 watts as compared with 48 watts for the de-icer.

Heaviest user of power on a transport plane is the radio transmitter, which consumes 890 watts, a little more than a large-sized home electric iron, when in use.

Complicated signal light systems keep the pilot in touch with everything happening on board his ship. A light on the switchboard above the windshield in front of him flashes on automatically if the cabin door opens while the plane is in flight. A button enables the copilot to summon the stewardess. With another button he can turn on a sign at each passenger's seat reading "No Smoking. Please Fasten Seat Belts" when the plane is preparing to land. A variety of navigation lights, such as landing gear horn, cockpit lights, landing gear signal and landing lights, indicate the dependence of the modern airplane on electricity.

Many of the plane's instruments are electric, Mr. Boughton continues. The tachometer, which tells the pilot how fast his engine is turning over, is actually a small generator. The instrument itself measures the voltage of the current generated, for the voltage varies as the speed of the engine. Electric thermometers are frequently used in place of the ordinary type. Fuel gages to indicate how much gasoline the pilot has, are also electric.

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CHEMISTRY

Fear of War Intensifies Europe's Chemical Research

FEW better examples illustrating how close is the borderline between peace and war, exist in the world today than the terrific spurt of European chemical research.

Germany making feverish efforts to derive every conceivable product from the limited materials within the Father-

land. Czechoslovakia, just over one border of Germany, working equally energetically to augment its chemical industry. France troubled by labor and political unrest but still trying to expand its chemical activity as a scientific "ace-in-the-hole." Great Britain, proceeding with things chemical in orderly fashion but with accelerated efforts due to the rearmament program.

This, in thumbnail outline, is a summary of European chemistry as described by Dr. Harrison E. Howe who has just returned from an extended tour across the Atlantic.

Dr. Howe, editor of the journal "Industrial and Engineering Chemistry" of the American Chemical Society and a trustee of Science Service, is one of America's best known chemists. His summary truly is an impartial, objective and carefully-weighted estimate.

Basic reason for the chemical spurt in Europe, says Dr. Howe, is the apparent determination of the nations to erect around themselves economic walls which will permit, if necessary, an armed isolation. Self-sufficiency in all things is the goal so that if, and when, trouble does start a warring nation would not find itself like Germany did in respect to rubber during the World War.

Chemistry, that can work such seeming miracles as making wool out of the casein in milk, or rubber out of limestone, air and water is thus receiving the support of the leaders of government and industry alike.

In some countries, says Dr. Howe, the chemist seems to attain a rank of honor and respect which so many wish might be the case in America.

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FORESTRY

Bootleg Miners Ruining Woods to Get Timbers

BOOTLEG coal mining in the anthracite region has brought large-scale timber devastation in its train, A. C. Silvius, of Pottsville, Pa., has reported to the Society of American Foresters. The unemployed miners, who are helping themselves from coal seams at or near the surface, are propping their diggings with timber from nearby stands, sometimes with consent of timber owners, sometimes without. It is a very wasteful operation, Mr. Silvius reports, for the miners take only such parts of a tree as exactly suit their purpose, and they leave tops and slash lying about to increase fire hazard.

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