PETROLEUM TECHNOLOGY

Better Quality Fuels

Will reduce operating costs and improve performance of airplanes. Special fuels are on the way to help win the battle of the Pacific.

➤ BETTER quality aviation fuels are now being developed that will reduce the operating cost for planes and at the same time will give improved performance. Intensive research is also being done to develop special fuels that will play a big part in winning the battle of the Pacific.

While facts and figures about these new fuels cannot be released at present, the general objectives are clearly defined.

The airlines spend several million dollars a year for fuel for their planes, and after the war, with the promise of increased flying, the cost of fuel will play an even bigger part in keeping the airline fares up. If a new aviation fuel that will give the same power on less fuel is produced commercially, your seat on a plane after the war may be less expensive.

The fuel that helped win the battle of Britain was one that obtained greater power from the same mixture of air and gas as was used prior to the war, resulting in better performances.

The big factor in the Pacific theater is range of operation. Petroleum technologists are now at work on a fuel that permits longer flights on the same amount of fuel. This fuel may help win the battle of the Pacific.

Going one step farther, science is endeavoring to create a fuel that combines the best qualities of the two fuels just mentioned, resulting not only in greater range but also in better performance, on a smaller volume of fuel.

The chief limiting factor in aviation fuel performance at present is the tendency of most fuels to knock under conditions of increased power. This is the same kind of knocking that annoys you when you "gun" your automobile motor going up a hill. Knocking in an aircraft engine is dangerous, even to the extent of destroying the engine itself.

The power output of an airplane engine when operating on the lowest weight of fuel may be limited by knocking. To obtain maximum power, it is necessary to find ways to avoid this knocking. This is done by feeding to the engine more fuel than it needs to produce a given amount of power.

Therefore, while modern aircraft fuels permit engines of greater power to be built, they use up large amounts of fuel. The B-29 has four 2,200 horsepower engines. This and other great teams of engine and fuel power our attack on Japan today. At the same time these engines still employ uneconomical amounts of fuel for take-off, climb, and high speed.

Startlingly high amounts of fuel have been needed in Europe. A single bombing mission over Berlin from bases in Britain requires up to 3,000,000 gallons of 100-octane gasoline for 1,000 heavy bombers and their escort fighter planes. This is about one-third of the reported total U.S. daily production of the high-powered aviation fuel.

The present consumption of aviation gasoline by our air forces is over 150,000,000 gallons a month in the theaters of operations only.

One squadron of 12 B-24's on a five-hour mission from the Palau Islands to bomb Mindanao might use up more than 16,000 gallons of aviation fuel.

The need for a fuel that gives greater power with lower fuel consumption becomes apparent when you look at the longer distance supplies of gasoline have to travel to get to the Pacific theater. Almost every drop of fuel used by our fighters and bombers in the South Pacific has to be carried by boat.

Science News Letter, September 30, 1944

ICE FREE—A new chemical de-icing lacquer for aircraft propellers that is painted or sprayed on, keeps the blades free of ice for long periods of time. Called Icelac, it is black in color and has a consistency like that of glycerine. When the substance loses its sheen, additional coats are applied. Notice that the untreated wing is iced.

PSYCHOLOGY

There Is No Such Thing as Pure, Unmotivated Thought

➤ THERE IS no such thing as pure, unmotivated thought, Prof. Gardner Murphy, of the College of the City of New York, told his colleagues in his address as president of the American Psychological Association. In thinking, he said, a person is always influenced not only by external facts but by his own needs, desires, fears and tensions.

Even scientists, he declared, need to see things in the light of the culture in which they live and to espouse views that are reputable at the time.

Not only the wish, but fear may be father to the thought. And a pattern of thinking derived from fear may be repeated and fixated. In anxiety, a person recalls that which has brought on the greatest distress.

Hope for freeing the intelligence from this inner domination of thought is seen by Prof. Murphy in man's natural curiosity.

"The curiosity impulse is one of the most powerful, one of the most difficult to assuage, that man possesses," Prof. Murphy declared.

"He needs contact with reality even more than he needs escape from it. He can develop such a craving for contact with reality as will sweep away petty personal prejudices and the smug sense of cultural rightness."

When such curiosity is socially shared as it is in the field of science, it can be especially powerful in discovering the truth—and such curiosity is highly contagious.

"Peace makers," said Prof. Murphy, "might well be concerned with the efforts of scientists to look upon the problem of world order as one which can in many respects be approached through the methods of organized scientific curiosity."

Science News Letter, September 30, 1944