cept of very low drag with low wing loading has not been exploited in such studies. It therefore appears that fruitful results might be obtained by a systematic investigation of this sort.

However, by far the greatest progress will be made by concentrating on lowering the drag even lower than was done by Eppler and Naegele on the Phoenix. The research done on Phoenix at Mississippi State University was initiated on the basis of Eppler's fine airfoil theory. However, careful delineation of the weak points of this theory made possible by the boundary layer studies done by Dezso Gyorgyfalvy on the Phoenix should result in further advances. In particular, the areas of separated flow should be eliminated either by geometric modifications or preferably by suction requiring extremely low power from the muscles of the pilot.

The cruising performance study discussed herein is not complete in that no consideration was given flying into the wind which is necessary on distance and return flights or triangle courses. A further amplification of the computations made in this paper is planned so as to include winds.

The authors would like to express their appreciation to the many members of the team which made this study possible. In particular we thank Hermann Naegele for the fine research flying he did with the Phoenix, to Dr. Richard Eppler we are most grateful for arranging the loan of Phoenix, to Mr. L. Bolkow we are indebted for his kind cooperation in connection with Dr. Eppler and Mr. Naegele, and to the U. S. Army Transportation Command we owe the support of this project and the round trip by air for Phoenix and Hermann Naegele. Without all our colleagues in the Aerophysics Department we could not have done this study.

References

1. Naegele, H. and Eppler, R. "Plastic Sailplane FS-24 Phoenix," *Soaring*, July-Aug., 1958, pp. 2-5.

2. Eppler, R., "Direct Computation of Airfoils from Pressure Distribution," Ingenieur-Archiv, 25, pp. 32-57, 1957.

....., "Laminar Profiles for Sailplanes," Zeitschrift Flugwissenschaften, Vol. 3, No. 10, 1955, pp. 345-353.

3. Raspet, August, "Flight Characteristics of the Phoenix Sailplane," *Soaring*, May-June, 1959, pp. 6-7.

4. Pretsch, J., "The Stability of Two-Dimensional Laminar Flow with Pressure Drop and Pressure Rise," M.A.P., Rep. & Trans. No. 22, 1946.

5. Claybourn, H. Marshall, Sr., "Flight Testing the HP-8," *Soaring*, October, 1959, pp. 5-7.

6. Kraemer, K., "Windtunnel Measurements on the EC 86(-3)-914 Airfoil," Aerodynamische Versuchsanstalt Goettingen, Report 56/S/05.

7. Hakinnen, R., "The Turning Characteristics of Sailplanes," *Ilmailu*, January, 1947.

8. Eppler, R., "Design of Gliders," *Aero-Revue*, No. 8, 1956.

....., "Der Gunstigate Kreisflug der Segelflugzenge," Zeitschrift fur Flugwissenschaften, January, 1954, Vol. 2, No. 1, pp. 15-16.

9. Carmichael, B. H., "What Price Performance," *Soaring*, May-June, 1954.

A TRIBUTE TO DR. AUGUST RASPET

by FRED MATTESON

Dr. August Raspet's scientific contributions to the fields of aeronautics, meteorology, ornithology, the sport of soaring and other fields were very numerous. They are generally well known and documented since he spoke at many meetings and his papers were widely published both here and abroad.

His contributions to society, however, do not rest solely with his scientific achievements, to say the least, but these other things which he has so freely given to the world do not appear in print. I feel it is fitting at this time to write a few words so that those who were not fortunate enough to know him personally will know of his outstanding qualities as a friend and fellow man.

My first contact with Gus was shortly after the war when I had written to him for some information on the studies he was conducting on flow over a ridge for the Office of Naval Research. His reply was a stack of reports covering the subject and a long letter encouraging me to engage in some work on ideas which he had not been able to investigate himself. This incident was typical of Gus' unselfish encouragement and help to others in all walks of life who shared his broad interests. The many hours he spent corresponding with these people are probably as much a contribution in inspiration, assistance and encouragement to others working in the same fields as his own work.

In the soaring field his performance work on numerous sailplanes sparked the aerodynamic art to new highs. The position of the United States in the world of soaring and the existence of many world records resulted directly from his advancements to the state of the art. The growth of OSTIV is largely due to his efforts. His success in sailplane development attracted attention of various aircraft builders and the armed forces, and this has resulted in considerable recognition of our sport by others. But this is only half the story. His work was conducted on the simplest level possible in most cases with respect to equipment and financing; he did the most for the least. That he was able to continue his work at all was due to his own ability to sell his ideas and capabilities to others. Often his imagination was so bold that sophisticated people labled it fantastic! Well, Gus Raspet did it, and it didn't cost vast sums or take long. Gus didn't lift himself by his bootstraps, but he came as close as anyone is going to. By honest dedicated work and unselfishly encouraging and helping his fellow men, he has earned for himself, for soaring and his country a position of respect and honor in the world that we would do well to remember and emulate.

REMEMBERING GUS

by BEN SHUPACK

My fundamental thought about Gus is that it was not his brilliance that struck me so much, as his innate simplicity and kindness. He gave of himself without limit to those who asked for assistance. His inspiration helped many an enthusiast persist in and complete a project. Whenever he saw an opportunity for a person to do research in his own backyard he was eager to suggest the problem, the procedure, and even helped with the analysis.

For example, the flying of atmospheric waves was preached by Gus. He approached Bob Symons about investigating the Sierra Wave. Bob listened, flew, consulted with Gus and flew again. As a result we have world records, the Sierra Wave Project and many Gold C's and Diamond C's. I wonder how many in soaring know of Gus's groundwork?

I listened to Gus talk about the sailplane as a research tool and with his help ran the first Scientific Ses-