(NY) Teacher's College, he taught in Machias, Marion, Gowanda and Syracuse in New York State, retiring in 1967. A church organist, he also served in this capacity for several Masonic organizations.

Lela Fraser Boulter, 85, organist in the Buffalo area, died in February, 1981.

In silent movie days, Mrs. Boulter was accompanist at the Shea's Buffalo and the old Century theatres in Buffalo. For many years she was pianist, organist and choir director at Buffalo churches, including Church of the Ascension, at North Street and Linwood Avenue.

Mrs. Boulter was born in Chenango County, Pa. She was a member of the Daughters of the American Revolution and Order of Eastern Star. Her husband was the late Gordon T. Boulter. □

THE ACOUSTICAL CONSULTANT

Differences and Similarities between Theatre and Classic Organs

by R. J. Weisenberger

Other than the use of percussions and sound effects, the basic differences between the theatre organ and the classic organ is the quantity and acoustical power of their pipework.

Classic organ tone is based on a multitude of various voices and mixtures, each differing slightly from the next, the emphasis being on tonal subtlety. Each stop, in itself, is usually quite weak by theatre organ standards, the pressures typically being from 1/3 to 1/5 those used on theatre organs. An instrument of 100 ranks can usually do a fair job of filling a good size church or a small concert hall with a respectable sound level.

Theatre organ tone is based on a variety of solo voices, many of which are quite traditional, only louder. Diapasons, flutes, bourdons, and strings are representative of this group. There is also an emphasis on unified ranks.

The use of higher pressures also made the development of larger scales a possibility, the most notable being the tibia family. The theatre organ is proof that an instrument of 20-30 ranks, when unified, is capable of a wide range of musical possibilities and capable of filling a large theatre to a level which can be felt as well as heard (levels in excess of 100 DBc).

World renowned organist, Virgil Fox, has said that a good organ should be able to handle not only the delicate passages, but also those requiring real "guts." Technically speaking, this means a wide dynamic range with upper levels near 110 DBc in the auditorium.

It is not only possible to build organs capable of this range, but to calculate beforehand the required pressures and number of ranks. The range of tonalities which can be used, within reason, being subject to the builder.

Several builders of the past combined some of the features of the theatre organ with those of the classic organ to produce concert instruments that have since not been equaled. A good example of this is the recently restored E.M. Skinner in Cleveland's Municipal Auditorium, which has a seating capacity in the neighborhood of 20,000. Pressures in this instrument range from 6" to 30" and are the reason for the success of this particular installation in an auditorium of this size.

Unfortunately, such instruments are few and far between, for only a handful were ever built. Our few hundred remaining theatre instruments may have been forgotten entirely and buried in the rubble of demolished theatres if it had not been for the dedicated efforts of ATOS.

We have saved a few noble instru-

ments, but have forgotten the tradition, based on research and evolution, which resulted in the development of the theatre organ. Today, organ building has almost become a lost art, because builders reject newer concepts in favor of those prior to the theatre organ.

We now have the technology to resurrect this art to what it once was and even beyond.

As members of the ATOS we can do much to help reunite the various opposing "schools" of organ building by breaking down conflicting opinions and prejudices with unbiased proven scientific facts.

This could be the beginning of a new chapter in the evolution of the pipe organ as soon as we begin to understand more about our instrument by examining it at a level our predecessors could not have even dreamed of.

By knowing beforehand just how powerful an organ will be when using given pressures and a given number of ranks, pipe organs could soon begin to be designed for installation in stadiums and other very large public structures.

The economic factor involved in custom-designing large pipe organs could be greatly reduced, permitting them to compete better with electronic organs on a performance/$ basis. A single rank, efficiently voiced at 30" pressure, for example, can produce a sound level equivalent to the full organ level of a typical 100 rank instrument voiced at only 3" pressure, while yet retaining quite traditional tonal characteristics, provided such a pipe can be built within traditional scales. Tests have shown that a tenfold increase in pressure will normally result in a hundredfold increase in power.

Pipe organs no longer need to be limited to relatively intimate acoustical environments to produce a big sound. We need not limit future instruments to a fate of living out their useful lives in a small neighborhood church, pizzeria, etc. to be heard and appreciated by only a select few. Instead, a new generation of organs could be installed where the general public could rediscover an instrument whose tradition began over 60 years ago with Hope-Jones, and with the aid of modern technology, was resurrected, continued to evolve and re-emerged on an even grander scale than before. We, of ATOS are the ones who can help bring about a NEW GOLDEN AGE of this magnificent instrument.

Unfortunately, there are those who still maintain that a low pressure tracker organ is superior to any other type (since this was the instrument of Bach). There is no scientific evidence to support such a belief. There is no ideal universal operating pressure for all organs. High pressure pipework is *not* inherently inferior to that of low pressure. When low pressure instruments were the only type being built, they were products of necessity — not choice. Wind supplies had to be hand pumped, therefore low pressure designs were necessary in an organ of any appreciable size or range of tonal colors, due to the lack of available power. (Let us remember that although the power required to lift 550 lbs. at the rate of one ft. per second is only one horsepower, it's quite doubtful that even ten men could continue to work at this rate throughout an entire performance.)

Should the myths of the inherent superior tonal qualities of low pressure organs continue to go unchecked now that science can prove them to be mere fallacies?

Such unsound methods of reasoning were born in the minds of early critics of the theatre organ (the most notable critic being George Ashdown Audsley). Many builders accepted these fallacies as truth because, until recently, there was no scientific proof to the contrary. One of Audsley's works, *The Art of Organ Building,* first published in 1905 and still in copyright, is considered by many to be the "final word" on the subject of organ building, despite the recent scientific findings.

Perhaps Audsley's criticisms dealing with the lack of tonal variety, the over-use of 8' pitches and poor balance between various stops could have been justified in some cases — straight organs no less subject than theatre organs — if he had directed his criticisms against the individual instruments instead of against any innovative concept of organ building that differed from his own personal opinions.

Early critics of the theatre organ finally had to admit that this instrument was by far the most popular type of organ ever built, but they attributed its success to the poor taste of the general public. But, isn't it ironic that organ building in general reached a peak during the first quarter of this century that the world had never seen before nor seen since?

Isn't it time that organs should be judged on their *acoustical* merits and the public reaction toward them rather than by how well they conform to any one "school" of building?

Albert Einstein once stressed the importance of scientific methods of investigation by experiment, measurement, and observation as opposed to mere intuition and speculation in the following words: "Base your thinking only upon those things which can be observed in real experiments. Forget questions about things which cannot be observed. Ignore them — they are not only unanswerable, they have no place whatever in scientific thinking." □