

Factors in Future Development of Rail Piggyback

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•THIS PAPER discusses the outlook for trailer-on-flat-car (TOFC) service and its wheelless cousin, container-on-flat-car service (COFC). The analysis considers many of the factors directly or indirectly affecting the future of this coordinated transport method, which has experienced a remarkable growth in the past decade. The conclusion is that piggyback service will continue to demonstrate strong growth trends, but the rapidity of this growth will involve many considerations which do not permit a firm quantitative forecast.

RECORD TO DATE

Development of piggyback service from the experimental stage to its present stature has occurred largely in the decade beginning in 1955, following an Interstate Commerce Commission decision in 1954 which clarified an accumulation of issues concerning the lawfulness of such operations by the railroads. Although the piggyback method was used to a limited extent and in primitive fashion as early in American transportation history as the 1830s, its recent upsurge required the impetus of modern technology and improved operating practices joined with attractive pricing.

Piggyback traffic in 1965 was more than six times as great as in 1955. While TOFC traffic (including COFC) in 1965 accounted for about 3 percent of total carloadings (and, according to the ICC, for 3.7 percent of freight revenues in 1964), it was a considerably larger proportion of the total excluding such ineligible bulk commodities as coal, ore and other raw materials.

In 1965, more than 2 million trailers and containers were moved in rail piggyback revenue and nonrevenue services. Beginning in January 1966, the AAR Car Service Division will report each week the number of highway trailers and containers as well as the number of carloadings in revenue piggyback service.

Present techniques for handling traffic by rail in trailers or containers reflect the results of intensive research and experimentation supported by substantial investments in equipment and other facilities. Thousands of special flatcars have been made available for these operations; increasing numbers of terminals have been specially designed, located and equipped to handle piggyback traffic more efficiently and expeditiously; and millions of dollars have been spent to raise right-of-way clearances for piggyback loads over direct routes. With expanding volumes, solid all-piggyback trains increased in number and in geographic scope. Efficient use of rail flatcar and trailer-container equipment has also been aided by the use of modern rail communications and signaling, improved motive power and automatic data processing.

Growth of rail piggyback carloadings of one or more highway trailers or containers in revenue service from 1955, the first year for which comprehensive records were maintained, through 1965, is shown in Table 1. Such carloadings exceeded one million for the first time in 1965, marking another milestone in the rapid development of this coordinated rail-highway service. The 1965 total of 1,031,210 carloadings was 15.8 percent greater than in the preceding year, indicating continuation of a strong growth rate.

The foregoing figures do not include transportation of new motor vehicles on the now familiar bilevel and trilevel railroad rack cars. Within the past five years, such

TABLE 1
GROWTH OF RAIL PIGGYBACK CARLOADINGS

Year	Rail Cars Loaded with One or More Highway Trailers or Containers in Revenue Service	Index
1955	168, 150	100
1956	207, 783	124
1957	249, 065	148
1958	278, 071	165
1959	416, 508	248
1960	554, 115	330
1961	591, 246	352
1962	706, 441	420
1963	797, 474	474
1964	890, 216	529
1965	1, 031, 210	613

rail traffic has grown sharply and has shifted almost entirely from the trailer-on-flat-car method to rack cars which haul as many as 15 new automobiles each. As recently as 1959, the railroads handled only 8 percent of new motor vehicle shipments. In 1964, the railroads transported 38 percent of new motor vehicles to distribution centers, and it is estimated that in 1965 the rail carriers hauled over 4, 500, 000 vehicles, or more than 45 percent of the total factory shipments.

FUTURE PROSPECTS

As yet, the volume of piggyback traffic is still a relatively small part of total inter-city truck transportation, indicating a large potential for further growth. Although the continuing spread of piggyback methods depends on the interaction of many factors, the outlook is distinctly favorable unless adverse government policies stunt the growth potential.

Daniel P. Loomis, President of the Association of American Railroads, has noted: "Despite great growth, the traffic (TOFC) is still only 3 percent of present freight carloadings. It is possible this could rise to as much as 20 percent in future years. . . . The final impact of piggyback is nowhere in sight." James P. Newell, President of Trailer Train, which is a major railroad-owned supplier of pooled flatcars for piggyback service, has said: ". . . within the next 10 to 12 years piggyback will be three to four times what it was in 1963."

Prospects for the future growth of TOFC and containerization may be affected by external conditions as well as the internal factors of equipment, operations, service and cost of this transport method.

EXTERNAL FACTORS

A favorable external factor is the expectation of continuing expansion of the Nation's economy, with the production of an increasing diversity of commodities for extensive marketing over considerable distances. Such an environment should provide excellent opportunities for coordinated rail-highway transport on a vast scale combining the basic economy of rail line-haul with the flexibility of short-haul motor vehicle movements in origin and destination areas. As has already been demonstrated to a limited extent, the range of such operations may also be extended substantially to foreign and to offshore domestic shipping by means of interchangeable containers.

Much will depend on the avoidance of public policies that would obstruct these promising developments. Issues of public policy cannot be ignored, for there have

been indications that certain of them could cast shadows on an otherwise favorable piggyback outlook. The principal policy decisions necessary to avoid stunting the future of piggyback transport are the following:

1. Recovering adequate payment from highway freight carriers for their use of public highways as numerous studies and Presidents Kennedy and Johnson have recommended. The U. S. Bureau of Public Roads, also, in its recently completed Section 210 report concluded, on the basis of incremental cost analysis which it considers to be the most significant measure, that operators of large and heavy trucks generally fall substantially short of paying the highway costs for which they are responsible.
2. Maintaining economically sound size and weight limitations for highway freight vehicles. Actions not based on substantiated engineering and economic analysis which would increase the permissible weights and dimensions of trailers or containers would give an undue stimulus to over-the-road operations, resulting in greater highway construction and maintenance costs and making difficult effective physical coordination between highway and railroad piggyback facilities.
3. Avoiding unjustified hindrances to piggyback growth through flexible regulation as to rates and in other respects. As in any technologically improving and expanding business, promotional rates may have a necessary forward-looking role in helping to build the volumes necessary to achieve an efficient scale of operations as well as an economic utilization of facilities.

INTERNAL FACTORS

With its rapid development during the past decade, piggyback has had its share of difficulties. Doubtless, also, the further expansion of TOFC and containerization will be accompanied by problems of the sort usually associated with the dynamics of technological and operational changes and increasing volumes. But none of the problems that presently exist or can be perceived needs be regarded as insurmountable for, as has aptly been said, nobody has yet been able to detect a truly basic flaw in trailer-container transport by rail coordinated with other modes.

Therefore, it can be anticipated that solutions will be worked out in such matters as equipment shortages and incompatibilities, inadequacies and high costs of some terminal operations, frequency and reliability of schedules, geographical extensions to areas not now served, and refinements in pricing techniques through further market and cost research. In coping with these and other matters, the railroads can also count on strong support from an expanding corps of vitally interested shippers, as well as from numerous short-haul trucking firms which are finding it advantageous to specialize in the conveyance of trailers or containers to and from the railheads.

In 1965, recognition of the need for consolidation of efforts to deal with problems of piggyback growth resulted in the organization of a National Railroad Piggyback Association, supported by nearly all of the railroads substantially engaged in providing piggyback services. As stated in its bylaws, the Association aims to "foster, protect and promote the interests of railroads engaged in the business of handling traffic by piggyback (and) to advance such interests throughout the United States and elsewhere through cooperation and organization. . . ." In furtherance of these objectives the Association proposes to:

1. Establish a businesslike code of piggyback ethics and encourage the membership to follow it;
2. Promote equipment utilization;
3. Promote, improve, clarify and coordinate piggyback services;
4. Work for standardization and interchangeability of equipment;
5. Create better working relationships and cooperation between lines;
6. Correlate and advance containerization, with a view to achieving standardization; and
7. Communicate developments in the piggyback industry.

As stated, one of the primary purposes of the National Railroad Piggyback Association is to promote greater efficiency through standardization of equipment and techniques.

In advancing toward this objective, it will also be recognized that there will be continuing need for flexibility and experimentation as well as standardization in the years ahead.

Increasing volume will itself provide opportunities for greater efficiency and improved service in the following respects.

1. Growing diversification of piggyback traffic, resulting in better balanced two-way hauls, extensions of interline rail services, and extensive use of equipment that will often be pooled.

2. Low-cost and effectively utilized special piggyback terminal facilities located advantageously in relation to industrial plants, highways and rail lines—and equipped with the most efficient loading and unloading devices. Radiating out from such marshalling and distributing yards, and, when appropriate, placed outside congested areas, coordinated piggyback services can readily be extended to off-rail points and thus "stretch the track."

3. Development of more all-piggyback trains operated on fast schedules, bringing extension of the unit-train concept to this kind of movement. With such high-speed "piggyback specials," avoiding intermediate terminal complexes, expedited coast-to-coast delivery is contemplated.

With advantage to both shippers and carriers, a notable feature of piggyback service is the marked reductions already being achieved in loss and damage of commodities. One major railroad has reported that its average claim on piggyback traffic is less than \$1.25 per trailer. Another larger carrier reports loss and damage payouts of \$0.475 per \$100 of TOFC revenue, compared with \$1.18 per \$100 on all other traffic.

Still another favorable prospect is that with piggyback the railroads may again become important carriers of small shipments on a profitable basis and at attractive rates. The use of TOFC and containerization can yield significant advantages to shippers who want either to consolidate small lots at central points for rail shipment or to distribute them by highway from rail transit points in destination areas. One railroad has converted its entire less-carload business to piggyback and others are actively planning to restore LCL service on this improved basis.

CONTAINERIZATION

A frequent question, and one to which the answer is not yet certain, is the extent to which trailers may be displaced by containers in piggyback service. Proponents of containerization as the second stage of piggyback emphasize the advantages of "leaving the wheels behind," thus reducing deadweight in the train, saving on investment in equipment and lessening clearance requirements. On the other hand, the need to transfer to a chassis at origin and destination presents some scheduling and operational problems.

Although containers now account for only about 10 percent of all piggyback loads, an equipment manufacturing group has predicted that this proportion will increase to 50 percent by 1970. At present, this method has asserted itself most strongly in export-import traffic and in the handling of mail and express. Vigorously promoted by some railroads as well as by designers and manufacturers of containers, a continuing expansion of containerization appears probable even though it may not, in the foreseeable future, generally displace large and increasing volumes of TOFC. Prospects for the containerization method were improved recently when the American Standards Association adopted four sizes of containers for all modes of transportation, each with width and height of 8 ft but with lengths of 10, 20, 30 and 40 ft.