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Is The Natural Sponge Fishery Doomed By Synthetic Sponges?

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DURING THE LAST MEETING of the Gulf and Caribbean Fisheries Institute in November, 1949, several speakers emphasized methods for aiding the sponge industry from the biological viewpoint. J. Q. Tierney and C. E. Dawson, of the Marine Laboratory, University of Miami, recommended sponge cultivation and indicated culture methods. They suggested the establishment of a sponge farm for the purpose of providing stock for the depleted sponge beds, and the transplantation of healthy stock from other areas to the Tarpon Springs grounds. Dr. Lewis Radcliffe recommended the adoption of a sponge fishery management plan for Florida and the Bahamas, favoring the transplantation of high quality commercial sponges to Florida waters. Congressman Charles E. Bennett from Florida advocated the passage of S.2489, 81st Congress, first session, a bill which was introduced by Senator Pepper and which would enable the Secretary of the Interior to carry out a program of research and experiment with respect to natural sponges, to study the disease of natural sponges and to propagate and plant natural sponges.

This paper is a further contribution to the subject, from the economic point of view, and reports the results of a survey which was undertaken during the summer of 1950. Questionnaires were sent to distributors of natural and synthetic sponges, requesting information on preferences and purchasing habits. There are 91,124 retail outlets in the United States engaged in selling sponges. Of these, 33,221 handle hardware and 57,903 are drugstores. The questionnaire, prepared by the Fish and Wildlife Service, was distributed to representative stores in these groups through the National Association of Retail Druggists and the National Retail Hardware Association, each of which sent out 400 copies at its own expense. Both the preparation of the questionnaire and the stratification of the samples were done by use of modern methods of opinion research and by applying rules of procedure established by experienced poll technicians. There were 206 answers received. This is a 25.7 per cent response; 20 per cent is judged to be sufficient to be representative. The answers obtained by the questionnaire have provided a valuable basis for the evaluation of certain factors in the marketing of sponges.

Thirty-three drugstores reported an average monthly sale of 280 sponges. These included 161 small, 83 medium and 36 large sponges. Since small sponges average about 25 to the pound, medium about 18 to the pound, and large sponges about 11 to the pound, the average sale of sponges for the 33 stores was 14.32 pounds per month. Of the drugstores reporting, 47.8 per cent sold natural sponges. From their sales was computed a yearly sale of about 145,000

pounds of natural sponges by all drugstores, for the year ending June 30, 1950.

Sixty-five hardware stores, or 49.2 per cent of those answering, reported the sale of natural sponges. They sold a monthly average of 1,295 sponges, including 358 small, 544 medium and 393 large sponges, weighing 80.27 pounds. The total sales of the hardware stores were calculated to be about 212,000 pounds. Total sales of hardware and drugstores were about 357,000 pounds. These figures of sales agree closely with the amounts of sponges imported and produced domestically. In 1949 the United States imported 268,000 pounds of sponges and the Tarpon Springs Sponge Exchange sold about 84,000 pounds,

QUANTITIES AND VALUES OF SPONGE RETAIL SALES
IN U.S. IN YEAR ENDING JUNE 30, 1950

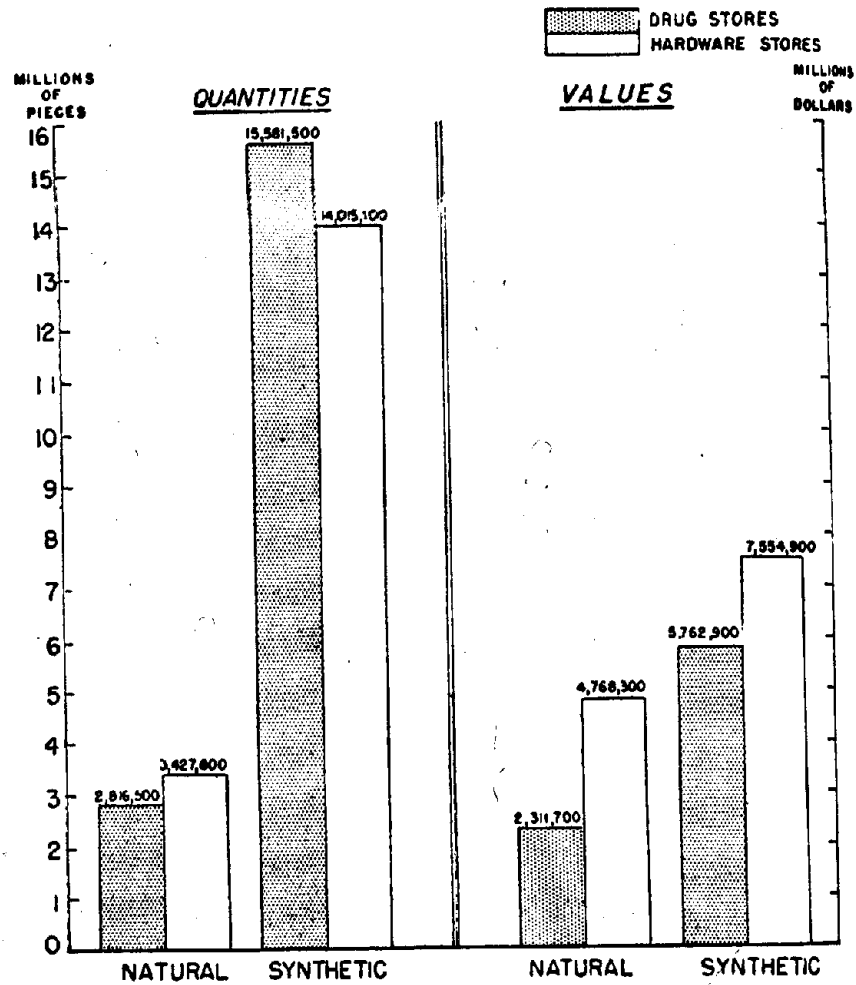

FIGURE 1

a total of 352,000 pounds. Adding the few thousand pounds which were sold outside the Tarpon Springs Exchange, mostly at Key West, the figure is almost exactly the same reported in the questionnaires and projected on an yearly basis.

Drugstores sold about 2,816,500 pieces of natural sponges, hardware stores about 3,427,800 pieces, a total of 6,244,300 natural sponges. Thus hardware

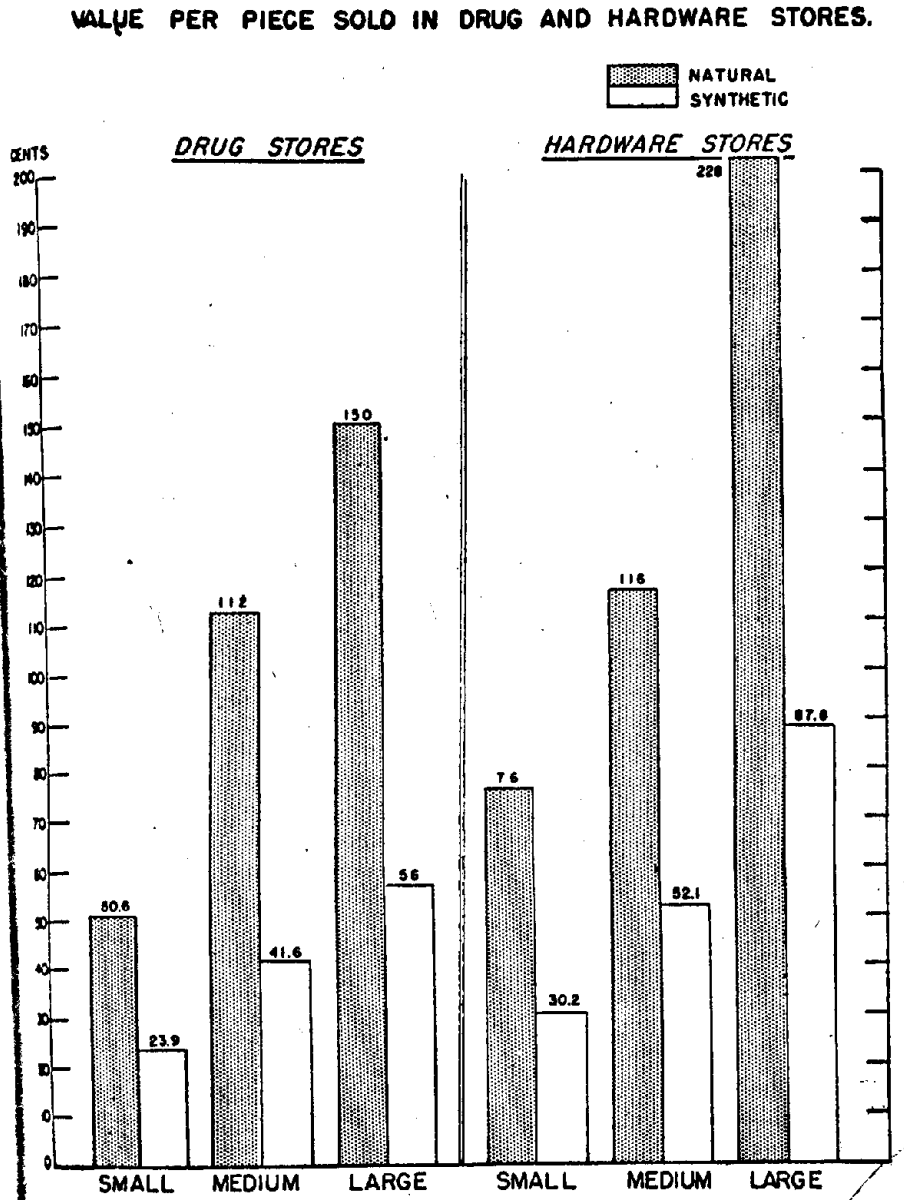

FIGURE 2

stores did 54.9 per cent of the business.[1] This quantity compares with about 29,596,600 synthetic sponges sold, of which approximately 24,090,400 were cellulose sponges, about 4,877,700 were rubber sponges and about 628,500 were other synthetic sponges. Drugstores sold about 15,581,500 pieces of synthetic sponges and hardware stores about 14,015,100 pieces. Thus, sales of synthetic sponges at present surpass sales of natural sponges by 373 per cent in numbers of pieces.

It can be estimated[2] that the cellulose sponges sold in the period ending June 30, 1950, weighed about 1,515,300 pounds, the rubber sponges weighed about 339,000 pounds, and the other synthetic sponges weighed about 46,200 pounds. The total weight of synthetic sponges was consequently estimated as being about 1,900,700 pounds. The weight of the synthetic sponges sold surpasses the weight of the natural sponges by 434 per cent, the average natural sponge weighing .057 pounds, being lighter in weight than the average synthetic sponge which weighs .064 pounds.

On a value basis, drugstores sold about $2,311,700[3] worth of natural sponges and hardware stores sold about $4,768,300 worth. Total retail sales of natural sponges were about $7,080,000 during the year ending June 30, 1950. This compares with sales of about $13, 317, 800 of synthetic sponges, of which about $10,967,700 worth were cellulose sponges, about $1,959,000 worth were rubber sponges and $391,100 worth were other synthetic sponges. Hardware stores sold about $7,554,900 worth of synthetic sponges. Sales of cellulose sponges by drugstores were valued at $4,396,000 (40.1 per cent) and by hardware stores to the amount of $6,571,500 (59.9 per cent). Rubber sponges sold in drugstores amounted to a total sales value of about $1,312,400 (67 per cent), and in hardware stores to $646,600 (33 per cent). Other synthetic sponges had minor importance in the drugstore sales, amounting to only $54,300 (13.9 per cent) and in hardware stores to about $336,900 (86.1 per cent) during the period involved. The average unit value of the natural sponges sold was $1.13, the unit value of synthetic sponges, 49.3 cents. While synthetic sponge sales surpassed natural sponge sales by about 120 per cent with respect to total value sold, the unit value of the natural sponges was higher by 129 per cent.

Hardware stores transacted 67.3 per cent of the natural sponge business, by value, but only 55.2 per cent of the synthetic sponge business. The reason for this difference is explained below.

The questionnaire also produced information as to consumer preference for natural sponges. Some interesting results may be derived from the answers. Question 12 asked: "Please give your opinion of the additional amount, if any, consumers would pay for natural sponges as compared with synthetic sponges." It is notable that the majority of those who replied to the question did not say that natural sponges must or should have an equal sales value with synthetic sponges. Replies indicate that, in general, consumers would pay 25 per cent

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1 Compare Figure 1

2 Weights of synthetic sponges used, based on factory reports were as follows: small cellulose sponges ½ ounce (.031 lbs.) each; medium, 1 ounce (.0625 lbs.) each; and large, .114 lbs. According to information received from the United States Rubber Company, rubber sponges weigh about 20 per cent more than cellulose sponges.

3 See Figure 2

more for natural sponges. Drugstore customers would pay around 50 per cent more. This indicates that in drugstores a better price can be expected for natural sponges than in hardware stores. This means a retail price of about 75 cents per piece would be most acceptable to consumers. This would involve a reduction of the present price level of natural sponges of about 30 per cent at the retail level. It should now be considered whether such a reduction is possible. This question is related to the possibility of rehabilitating the sponge beds. If the beds can be rehabilitated, a price reduction does not necessarily mean income reduction, since higher sales volumes could then be realized. If the rehabilitation of the sponge beds should succeed, an increase in the production to nearly prewar levels could give the fishermen a better income than they have at present, even with reduced prices. In 1949 the average price received by the fishermen through the Tarpon Springs Sponge Exchange was $5.61 per pound. Total sales at Tarpon Springs, however, were only 83,947 pounds. If sales increased to prewar highs of about 600,000 pounds, the income of the fishermen in the Tarpon Springs area would be about $3,000,000, or even if the increase were only to the half of the prewar production, their income would be $1,500,000 compared with the $471,000 they received in 1949. Such increases in production would probably bring about adjustment of unit prices so that the market could be expected to absorb them.

Other considerations which are important for the recovery of the sponge industry should be considered. Improved marketing is one of these. Good marketing means that a product be brought before the consumer in a state which as nearly as possible fills the needs of the consumer without further handling. It is also necessary to invite the consumer's attention through proper sales appeal when the product is offered. It is further necessary to make the consumer aware of the availability of the product and its advantages in different possible uses through proper advertising. Finally, every level of distribution has to see to it that the product is available to the public at any time it is needed and in the proper assortments and proper price classes. These are four fundamental marketing principles. All were emphasized by the results of this survey and they indicate that improvements can be made in the marketing of natural sponges. Question 10 of the questionnaire asked, "What factors would increase the sale of natural sponges?" Besides "lower prices" the greatest number of opinions recommended "better grading." This means, in the case of natural sponges, that not only should small, medium and large sizes be properly separated, but also that the sponges should be sorted better as to quality. One opinion referred specifically to the fact that sometimes sand and stony material are found in sponges which have to be washed out before they can be used.

The second greatest number of opinions referred to "improved packaging." It is known that the synthetic sponge industry conquered a great portion of its territory by wrapping its product in transparent paper which gives a better appearance and acts as a purchasing incentive. Some dealers indicated that they cut natural sponges and pack them in transparent paper in order to meet the competition of the synthetic sponges. Improved packaging should become a common practice and it should start at the first distribution level.

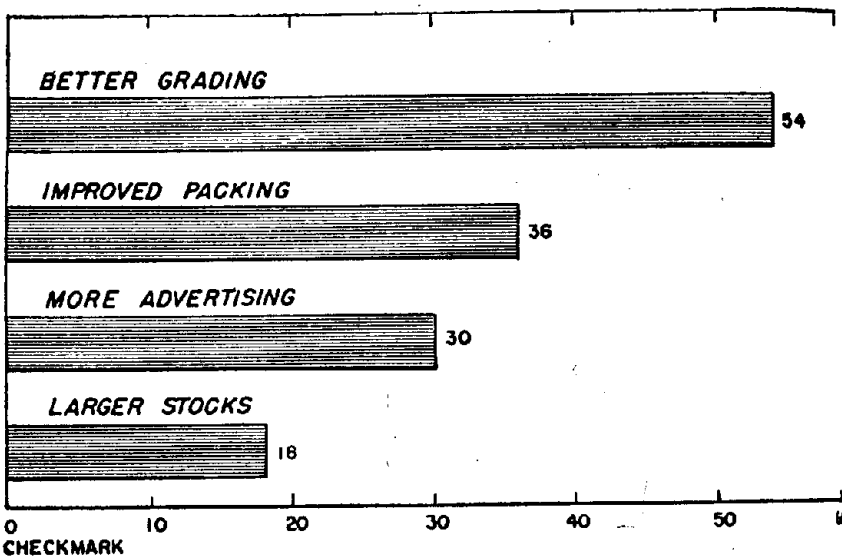
The third greatest number of opinions referred to "more advertising" as a medium of increasing the sale of natural sponges. The only advertising or publicity for natural sponges appearing in newspapers at present is in connection with hurricanes or disasters which come over the sponge fishing industry. Rarely

is there an article on the usage of natural sponges, on their properties, or on sponge fishing.

The fourth largest number of opinions expressed in connection with Question 10 refers to "larger stocks." Some merchants cannot always obtain the sponges they had ordered or they cannot obtain the sponges quickly enough to comply with the needs of the consumer. Of the opinions received, 6 per cent referred to this point. This means that about 3,600 retail stores could not obtain natural sponges either within the desired grades or within the desired period of time. Wholesalers as well as distributors must maintain larger stocks from which to fill the needs of the retailer if they want to improve the sale of natural sponges.

The answers received to Question 10 agreed with the answers to Question 9 in which it was asked, "If synthetic sponges have become more popular, what is the reason or reasons?" Besides the replies that "prices are lower" other factors were mentioned, such as, "more on hand," or "greater selections," which shows that the question of availability plays an important part in this trade. Other respondents mentioned "more uses," or "better quality" as the reason for the popularity of synthetic sponges. However, these two answers should perhaps be regarded with skepticism because Question 11 asked about the comparative value for the various uses of natural and synthetic sponges and received answers which show that the number of consumers preferring natural

RECOMMENDATION AS TO METHODS OF INCREASING NATURAL SPONGE SALES. (BESIDES LOWERING PRICES AND SOME NEGLIGIBLE REASONS.)



X ON THE BASIS OF 283 CHECKMARKS, OF WHICH 132 REFER TO "LOWER PRICE".

FIGURE 3

sponges was about equal to those preferring synthetic sponges. It is apparent from this survey that the consumers of natural sponges are more enthusiastic about the products of their selection than the consumers of synthetic sponges. The questionnaire gave evidence of the attitude toward natural and synthetic sponges and the suggestions for increased sales of natural sponges. (Figure 3.)

Four varying opinions are quoted.

1. Natural sponges are softer but synthetic sponges are more durable and absorbent. In dust respirators, which require a fine-textured, soft sponge, the natural sponge seems to be superior.
2. A select unbleached natural sponge will out-perform and outlast synthetic sponge, but preparation, selection, packaging, and price of natural sponges have reduced their consumption. It is not uncommon to find shell particles and sand in even the best of natural sponges.
3. Natural wool sponges are softer and more durable. It was suggested that manufactures could improve wool sponges by the addition of a little wintergreen in the final treatment to reduce the odor.
4. Natural sponges are very superior for every use. Some respondents believe they would far outsell synthetic type of sponges if prices were lower, if better graded and packaged.

The principal use of natural sponges is for car washing and for cellulose sponges is "housewife's general use." Of second importance for both types is for window cleaning. For cellulose sponges separately, the third most important use is for car washing, and for natural sponges the third most important use is "housewife's general use."

Summarizing the results of the questionnaire and interpreting them in the light of the general economic situation, the conclusion is drawn that the natural sponge industry will be able to recover lost ground if the *sponge beds are rehabilitated* so that production is increased to about 300,000 pounds per year and if prices recede as a result of this increased production. This still can, and should, leave a greater income for the fisherman. Recent economic developments have made the prospects for the development of the natural sponge industry appear more favorable. These recent developments center around the Defense Production Act of 1950 and the necessity arising under this Act for manufacturers of synthetic sponges to give priority to certain defense orders. The National Production Administration already put a restriction on the use of rubber for civilian purposes (M2 NPA) which will cut the quarterly rubber sponge production by about 15 per cent below the production during the period July-September 1950. No formal order of the National Production Administration has been issued concerning cellulose sponges, but it is known that the main producers of cellulose sponges are voluntarily allocating raw material which means a 15 per cent to 25 per cent reduction of the incoming civilian orders. This gap between production and demand, which probably will increase with the constantly increasing number of automobiles operated, can be filled by the natural sponge industry, if the conditions are met which this paper describes.