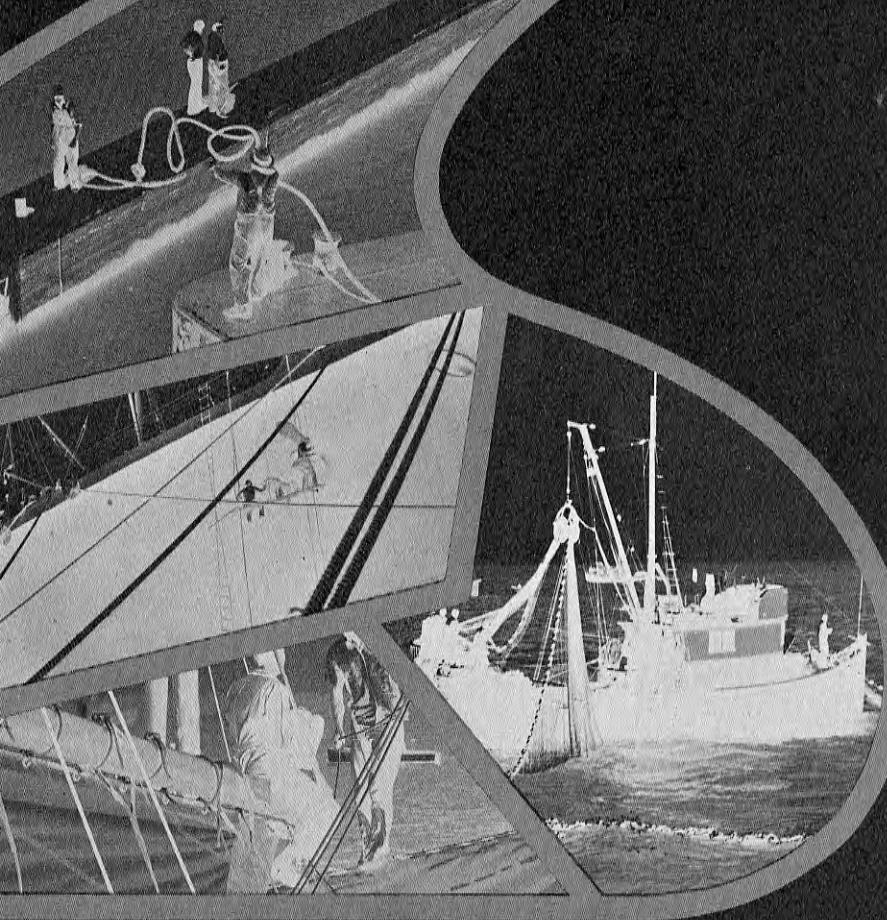


First,
through research



COLUMBIAN
Synthetic
ROPES



SYNTHETIC CORDAGE...

SYNTHETIC FIBRES... Their Origin

In 1938, a chemical fibre came from the chemist's test tube. This new substance with new characteristics was the result of eleven years of research by E. I. duPont deNemours & Co.

Two chemicals — hexamethylene diamine and adipic acid—were synthesized (combined). The resulting new substance with the chemical formula $\text{NH}_2(\text{CH}_{26}\text{NHCO}(\text{CH}_2)_4\text{CONH}(\text{CH}_2)_6\text{NHCOCO}(\text{CH}_2)_4\text{COOH}$, fortunately, was christened *nylon*. The long molecular construction, similar to that which occurs naturally in the fibres of cotton, sisal, jute and Manila hemp, made nylon the first truly synthetic textile.

Because of nylon's great strength, toughness, light weight, high shock absorbency, resistance to moisture and other outstanding properties, the Columbian Rope Company quickly found this new synthetic fibre an almost ideal material for the manufacture of rope. Thus nylon began a new era in fibre performance.

Since the arrival of nylon, there have been many other synthetic fibres discovered. Some (Dacron[®], polypropylene, polyethylene) have characteristics that make them highly desirable for rope making. Through research, there has been a continuous evolution of synthetic fibres into synthetic cordage. Leadership in the research, processing, and construction of new fibres into the finest synthetic cordage has become, and is today, a matter of record for the Columbian Rope Company.

*E. I. duPont trademark

A RECORD OF COLUMBIAN LEADERSHIP

Research and Development

The first satisfactory synthetic rope was produced by the Columbian Rope Company. World War II really triggered the development of synthetic yarns into a highly successful synthetic rope. The Army Air Corps desperately needed a strong glider-tow rope. Nylon had the strength but it raveled uncontrollably once cut and kinked badly after being subjected to stresses and strains.

Columbian researchers came up with the big answer to the nylon problem. They developed a *stabilization* process that eliminated unraveling and fluffing, took out 5% to 10% wet shrinkage, and eliminated excessive kinking and whipping. In order to satisfy the urgent demands of national defense, Columbian shared this patented process with other rope makers during the emergency period. General Hap Arnold, Air Chief of Staff, summed up the importance of Columbian's research breakthrough by stating in a letter to the Company, "Without your outstanding service, our air plans against . . . (our) . . . enemies could never have been accomplished." The stabilization of nylon was just the beginning of a long list of research achievements, in the field of synthetic cordage, by Columbian.

The Right Rope for the Job

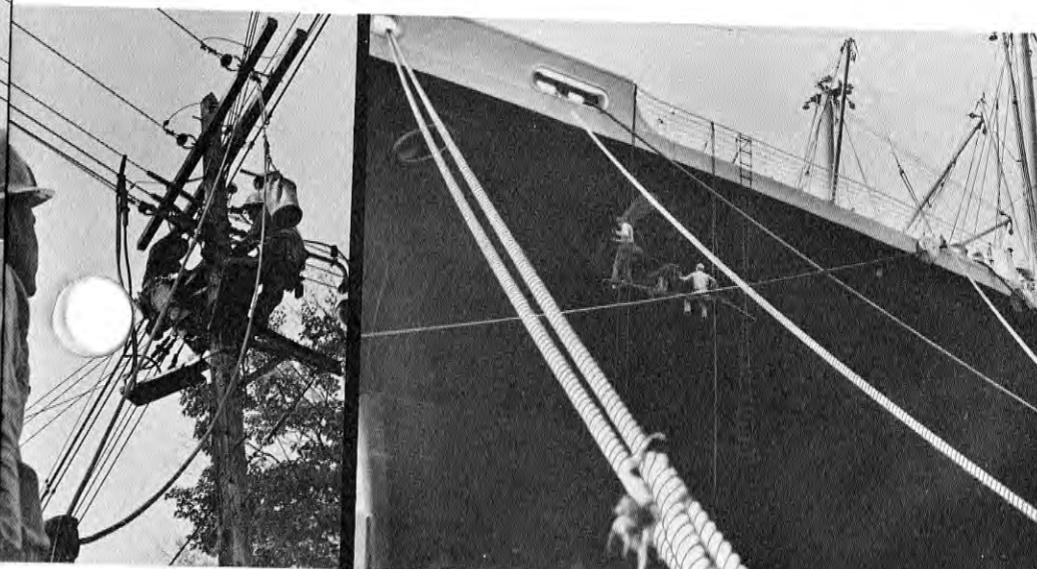
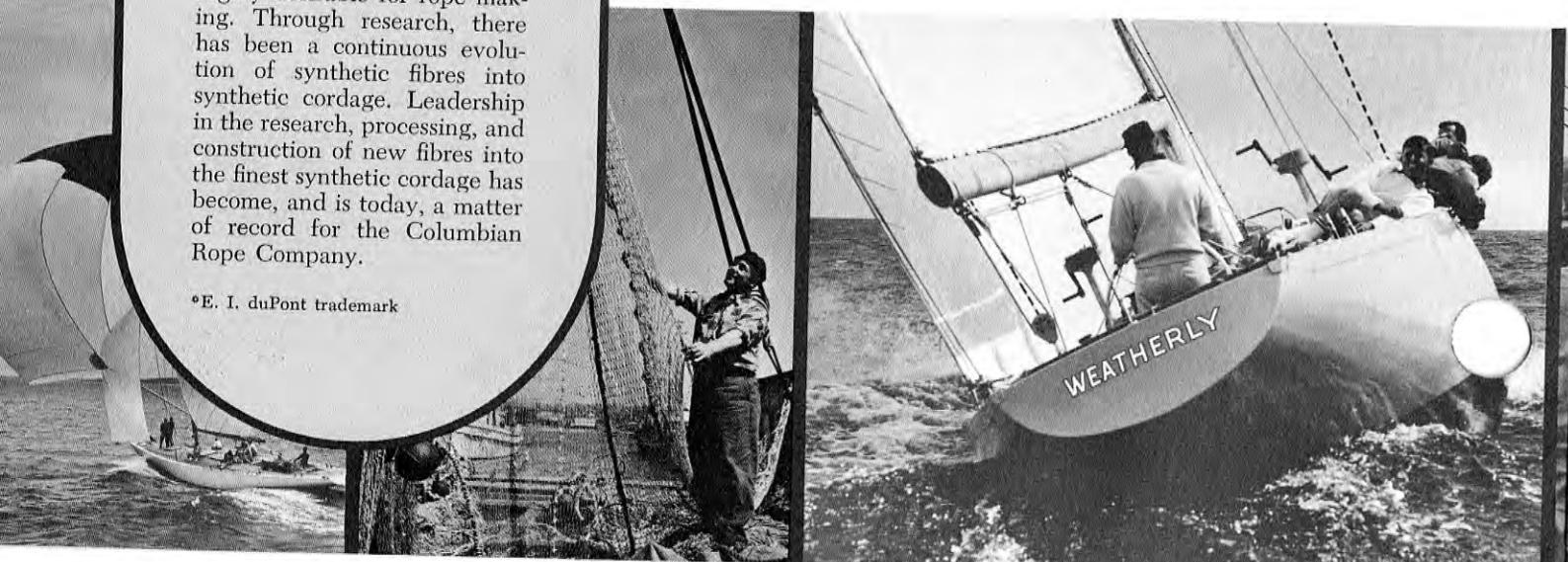
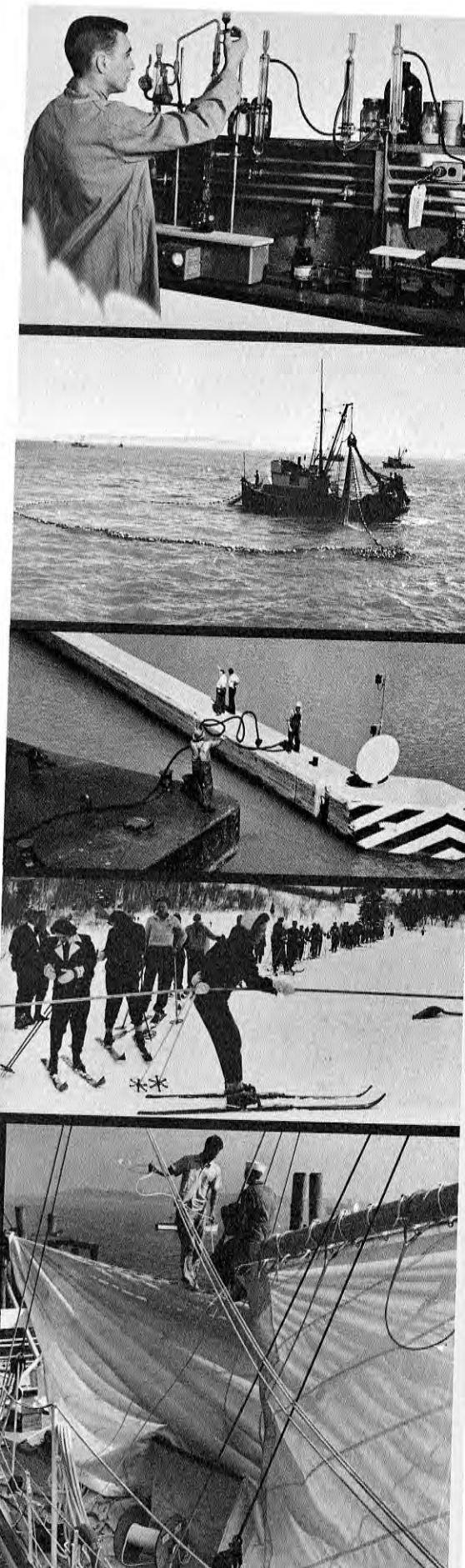
Nylon, Dacron and other man-made fibres with high strength, long life, and other outstanding characteristics are tributes to the fine work of today's industrial chemist. But it took cordage chemistry by Columbian researchers to turn these outstanding materials into outstanding ropes.

Since Columbian's research break-through with nylon rope for the specific job of glider-tow use, Columbian research facilities have achieved more "firsts" on the market than any competitor.

Every Columbian Rope, be it a general all-purpose design or a specific design for heavy marine use, pleasure boating, commercial fishing, barge and waterway use, electrical utilities, or ski-tow use, belongs to the largest and most advanced line of natural and synthetic fibre ropes.

Nyflax (runs cool on power winches), Duo-Syn (lower cost, all-purpose marine use), and Pli-moor (flexible 8-strand plaited construction eliminating kinking and hocking) are some exclusive Columbian synthetic ropes resulting from research.

Columbian engineers, chemists, technicians and field research specialists are constantly investigating, testing, and developing synthetic processes and constructions with the aim of producing improved rope for the job to be done.



COLUMBIAN SYNTHETIC ROPES

Ever alert to general and specific cordage needs, Columbian, for more than half a century, has been selecting, processing, and fabricating cordage fibres for general and specific applications. Columbian is constantly endeavoring to improve rope in every respect. If a new material is developed and can be applied to the manufacture of rope with improved performance, Columbian will be the first to promote

its manufacture and use. Into these new ropes go the experience and skill that has for years made Columbian Ropes preferred quality products. Constant field research and engineering changes keep Columbian abreast of improved techniques and facilities. And Columbian's aim to continually make the best in synthetic cordage has led to the development of these synthetic ropes:

NYLON

COLUMBIAN STALONG NYLON is the strongest rope you can buy. Has tensile strength nearly three times that of Manila. Made of plied yarn filament nylon, stabilized to prevent shrinkage. Inherent properties provide the ability to stretch, absorb shocks, and resume normal length. Naturally waterproof. Resists abrasion, rot, decay, and fungus growth. Available in 3-strand or Pli-moor 8-strand interwoven construction. Sizes up to 10" circumference.

DACRON*

COLUMBIAN DACRON ROPE is ideal for running rigging, bolt rope and any other application where a minimum of stretch, high strength and durability are needed. Pliable, lustrous and pure white, Columbian Dacron has the exclusive "stabilization" feature (process patented). This means easy splicing, easy handling, finer appearance . . . retains its lay, does not unravel or fluff when cut. This rope's exceptional qualities of greater strength (size for size 2 to 2½ times as strong as natural fibre rope), low moisture absorption, rot and mildew resistance, and resistance to wear all combine to give long service life. Available in 3- or 8-strand construction.

*DuPont Trademark — Polyester Fibre

POLYPROPYLENE

COLUMBIAN POLYPROPYLENE is one of the newest synthetics. Offers far greater strength than natural fibres. Slightly stronger, softer, and more flexible than polyethylene. Has high chemical resistance and good dielectric properties. Has more stretch than Manila but is highly desirable for its light weight (it floats) and ease of handling. Should not be left under heavy sustained loads as it may suffer some permanent elongation. Made in both multifilament and monofilament 3-strand and 8-strand construction plus a special 8-strand construction for ski-tow use. Furnished in several colors or combinations of colors.

POLYETHYLENE

COLUMBIAN POLYETHYLENE has a smooth, glassy appearance, wipes clean easily, is highly resistant to chafing, and is naturally waterproof. Resists rot and fungus. Can be stored while wet. Its outstanding characteristics are that it has excellent dielectric properties, chemical resistance, and it floats . . . indefinitely. Size for size it is stronger than natural fibre ropes. Should not be left under heavy sustained loads. Available in many colors or combinations of colors in 3-strand or Pli-moor 8-strand construction.

NYFLAX

TRADE MARK

COLUMBIAN NYFLAX is a new hybrid rope that runs cool even on power winches. Great as synthetic nylon is for many purposes, it can stand some help from Mother Nature for specific applications found aboard fishing vessels. That's why Nyflax was developed by Columbian rope experts. Nyflax retains nylon's great strength but adds to it the moisture holding qualities of flax fibre. Thus it fills the need for a strong rope that will run cool on winches without undue elongation and that will withstand long periods of exposure to strong sunlight without damage. 100% Nyflax available 1½" dia. and smaller. Polypropylene center yarns in larger sizes.

DUO-SYN

TRADE MARK

COLUMBIAN DUO-SYN employs a two-synthetic jacketed construction that has been proved best for all-around lower cost, synthetic marine rope. A result of Columbian custom blend research, Duo-Syn takes advantage of the highly desirable characteristics of both polypropylene and polyester fibres. Each strand is composed of a core of pure monofilament polypropylene yarns. The polypropylene outer yarns of each strand are encased in polyester jackets that provide extra resistance to abrasion, act as heat insulators to prevent fusing on bitts. Retains advantages of pure polypropylene—it floats, doesn't absorb water, won't rot, has same lightweight strength. Also available in 3-strand and 8-strand in custom fibre combinations for specialized applications.

PLI-MOOR

TRADE MARK

COLUMBIAN PLI-MOOR 8-strand plaited marine rope is the answer to the problem of kinking and hockling. Wet or dry, the torque-free nature of Pli-moor interwoven construction offers extraordinary flexibility for easier handling . . . eliminates hidden stresses arising from kinks and twists. After prolonged periods under great stress, repeated wetting or careless handling, Pli-moor returns to normal with no hidden or visual aftereffects. Retains perfect natural balance. Remains extremely flexible and easy to handle. Made only by Columbian and available in nylon, Dacron, polypropylene, Duo-Syn or any proportionate synthetic blend.

TECHNICAL DATA on COLUMBIAN Synthetic Rope

APPROXIMATE WEIGHT, FOOTAGE AND TENSILE STRENGTH

Size		TAPE-MARKED MANILA Regular Construction			"Stabilized" FILAMENT NYLON STALONG Construction			"Stabilized" FILAMENT DACRON STALONG Construction			MONOPRO & MULTIPRO [†] POLYPROPYLENE STALONG Construction			DUO-SYN Jacketed Construction			
Dia.	Cir.	Lb. per Ft.	Ft. per Lb.	Breaking Strength	Lb. per Ft.	Ft. per Lb.	Breaking Strength	Lb. per Ft.	Ft. per Lb.	Breaking Strength	Lb. per Ft.	Ft. per Lb.	Breaking Strength	Lb. per Ft.	Ft. per Lb.	Breaking Strength	
5/16	5/8	.015	66.60	450	.009*	113.00	1,050	.01*	100	900	.0065*	155	825				
1/4	3/4	.020	50.00	600	.015*	67.67	1,800	.018*	55	1,725	.011*	92	1,050				
5/16	1	.029	34.50	1,000	.025*	40.00	2,750	.029*	35	2,600	.018*	55	1,600				
3/8	1 1/8	.041	24.40	1,350	.036	27.78	4,000	.041	24.1	3,650	.025*	40	2,200				
7/16	1 1/4	.053	19.00	1,750	.050	20.00	5,500	.057	17.5	4,850	.033*	30	2,950				
1/2	1 1/2	.075	13.33	2,650	.066	15.04	7,300	.074	13.6	6,200	.044	22.5	3,800				
5/16	1 3/4	.104	9.61	3,450	.082	12.12	9,075	.093	10.7	7,700	.059	17	4,900	.076	13.2	5,400	
5/16	2	.133	7.50	4,400	.100	10.00	10,900	.115	8.7	9,300	.071	14	5,800	.096	10.4	6,600	
3/4	2 1/4	.167	6.00	5,400	.145	6.90	15,600	.167	6	13,000	.100	10	8,100	.125	8.0	8,000	
13/16	2 1/2	.195	5.13	6,500	.168	5.95	17,700	.196	5.1	15,200	.121	8.25	9,700	.15	6.7	9,300	
7/8	2 3/4	.225	4.45	7,700	.200	5.00	21,400	.227	4.4	17,500	.135	7.4	10,800	.18	5.6	10,900	
1	3	.270	3.71	9,000	.258	3.88	27,000	.294	3.4	22,300	.172	5.8	14,000	.21	4.8	12,500	
1 1/16	3 1/4	.313	3.20	10,500	.285	3.51	30,500	.331	3.02	24,900	.198	5.05	15,500	.24	4.2	14,600	
1 1/8	3 1/2	.360	2.78	12,000	.320	3.13	33,500	.375	2.67	27,800	.213	4.7	16,800	.27	3.7	17,500	
1 1/4	3 3/4	.418	2.40	13,500	.395	2.53	41,300	.461	2.17	33,700	.260	3.85	20,200	.31	3.2	19,500	
1 5/16	4	.480	2.09	15,000	.460	2.17	46,500	.505	1.98	37,000	.294	3.4	23,000	.35	2.9	22,000	
1 1/2	4 1/2	.600	1.67	18,500	.565	1.77	56,500	.662	1.51	47,200	.364	2.75	28,500	.44	2.3	26,500	
1 1/4	5 1/2	.895	1.12	26,500	.830	1.20	82,800	.885	1.13	63,000	.518	1.93	40,000	.61	1.6	38,000	
2	6	1.08	.93	31,000	.980	1.02	98,000	1.21	.83	80,500	.625	1.6	48,000	.73	1.37	45,000	
2 1/8	6 1/2	1.25	.79	36,000	1.120	.89	112,500	1.35	.74	90,000	.730	1.37	56,000	.82	1.22	52,000	
2 1/4	7	1.46	.685	41,000	1.310	.76	131,000	1.52	.66	100,000	.800	1.25	61,000	.96	1.04	60,000	
2 1/2	7 1/2	1.67	.59	46,500	1.500	.67	149,000	1.89	.53	122,000	.971	1.03	72,500	1.14	.877	70,000	
2 5/16	8	1.91	.52	52,000	1.700	.59	170,000	2.08	.48	133,000	1.08	.93	81,500	1.2	.833	76,000	
2 1/2	8 1/2	2.15	.47	58,000	1.900	.53	190,000	2.47	.405	155,000	1.20	.83	90,000	1.37	.730	89,000	
3	9	2.42	.42	64,000	2.130	.47	212,000	2.72	.368	168,000	1.41	.71	105,000	1.55	.645	98,000	
3 1/16	9 1/2	2.69	.38	71,000	2.33	.435	232,000	2.94	.34	180,000	1.49	.67	109,000	1.67	.599	105,000	
3 1/4	10	2.99	.33	77,000	2.480	.40	245,000	3.23	.31	195,000	1.64	.61	118,000	1.80	.556	116,000	
3 1/2	11	3.67	.27	91,000	3.03	.33	305,000	3.70	.27	224,000	1.96	.51	140,000	2.12	.472	136,000	
3 3/16	12	4.36	.23	105,000	3.57	.28	355,000	4.26	.235	254,000	2.22	.45	160,000	2.50	.400	158,000	

[†] MONOPRO—Monofilament Polypropylene MULTIPRO—Multifilament Polypropylene

* Manufactured Regular Construction, not STALONG (Plied Yarns)

COLUMBIAN PLI-MOOR weight and strength figures are approximately the same as those of 3-strand Columbian Ropes of identical circumference and fibre. Duo-Syn Pli-moor is somewhat heavier in the smaller sizes, having a larger proportion of cover yarns. Pli-moor is available in 3', 3 1/2", 4", 4 1/2", 5", 5 1/2", 6", 7", 8", 9" and 10" circumferences.

COLUMBIAN POLYETHYLENE has approximately the same strength as, but is about 5% heavier than the figures shown for Columbian Polypropylene.

COLUMBIAN SPUN NYLON ROPE is offered in sizes 1" diameter and smaller. Strengths are approximately 35% less than filament nylon figures. Weights are about the same.

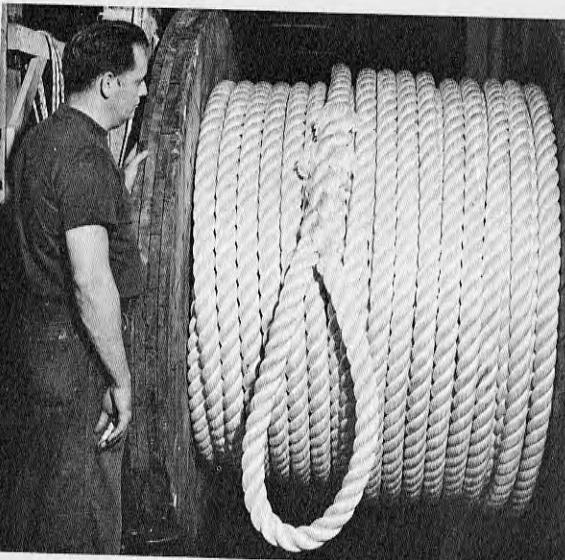
COLUMBIAN SPUN DACRON ROPE is offered in sizes 1" diameter and smaller. Strengths are approximately 20% less than filament Dacron figures. Weights are about the same.

Synthetics tested in accordance with Standard Industry practice.

Manila tested in accordance with Federal Spec. TR 605A. (Columbian Yacht Sisal approximately the same as Manila figures.)

Specifications for synthetic blends or special constructions given on request.

FROM GIANT REELS . . .



TO SMALL
COILS



Coupled with the wide range of quality synthetic rope resulting from Columbian research is the extensive packaging developed to aid the Columbian dealer and/or the buyer in selecting the best rope—fibre, size, length, and construction to best suit his needs. Packaging—in a range of reels, coils, half-coils, Col-pack cartons, Pick-Me-Up coils, display racks, stands, counter displays, and Merchandisers—is also the result of Columbian cordage research.

WHICH SYNTHETIC IS BEST FOR YOU?

Use FREE COLUMBIAN Technical Service

Confused as to which synthetic rope best answers your rope needs? You needn't be. Columbian specialists will gladly analyze your needs and recommend the best fibre and construction for your specific job—without cost.

Remember . . . whether you desire the extra strength and elasticity of nylon—the non-stretch handling line capabilities of Dacron—the extremely light and floating qualities of polypropylene or polyethylene—or require a specific synthetic blend or construction . . . the best name in synthetic cordage is Columbian.

For further information on any specific synthetic rope call your nearest Columbian Representative or contact:



COLUMBIAN ROPE COMPANY

Auburn "The Cordage City," N. Y.

