

Special Supplement to the Michigan State News

SIGHTS & SOUNDS



Friday, February 16, 1973



AUDIO SALE

PIONEER Fisher KOSS Wald SHERWOOD
Garrard AKAI PANASONIC Utah SONY BSR



4-CHANNEL SUPER SYSTEM

PIONEER, WALD, AKAI, KOSS AND GARRARD!

PIONEER No. QX4000 receiver with regular and SQ matrix decoders, 2.2 uV sensitivity, FM signal strength meter and FET circuitry. 4 WALD No. KR3X 3-way speakers. AKAI No. GX220D stereo tape deck: 3 speeds, 3 heads, GX-head focused field recording system, 2 VU meters. GARRARD automatic Zero 100 turntable with zero tracking error, Shure M-91E cartridge, WB2 base. KOSS No. SP3X stereo headset.

REG. \$1,637.45

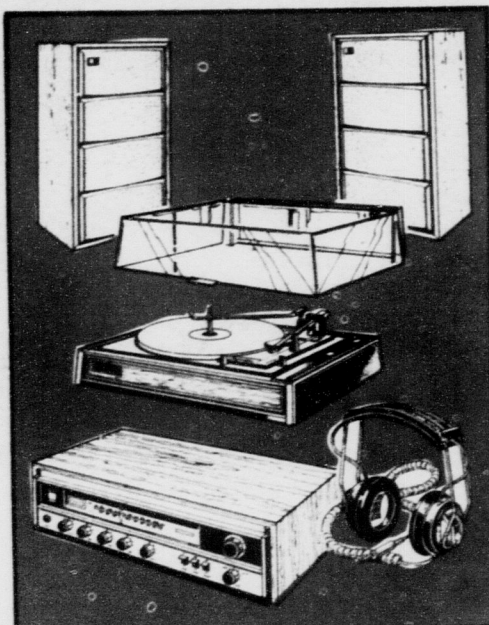
SAVE \$638.45

\$999

HIGHLAND PUTS IT ALL TOGETHER FOR:

VISIT THE SOUND ROOM at Highland Appliance. Shop in ideal acoustical conditions for the brands you know — names like Pioneer, Fisher, Akai, Sony, Utah, Panasonic, Koss, Wald, Garrard and Sherwood. Only Highland has every component Pioneer makes. Our prices are extra low and service is included at no extra cost!

EASY TERMS ★ INSTANT CREDIT ★ FREE SERVICE

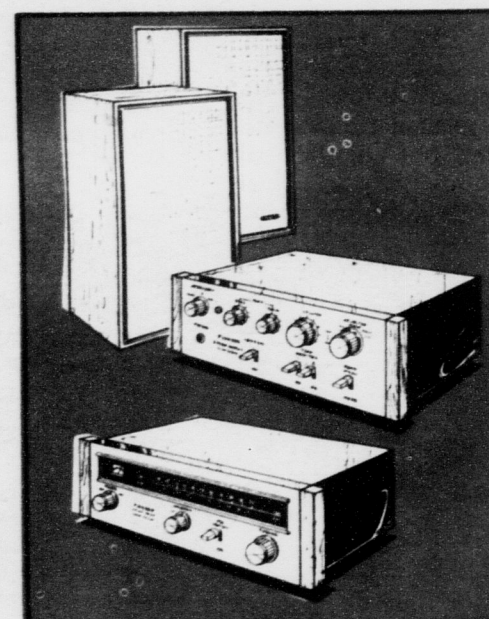


FISHER, KOSS and BSR
stereo music system with
many professional features

FISHER 170 series AM/FM stereo receiver with 48 watts IHF power, 2.5 uV sensitivity, tape monitor switch and Stereo Beacon circuit switch. TWO FISHER No. XP-65S 3-way speakers: 10" woofer, 5" midrange, 3" tweeter. BSR No. 510X automatic turntable with Shure cartridge, base, dust cover. KOSS No. +SP3XC stereo headset.

Reg. \$521.25 * Save \$172.25!

\$349

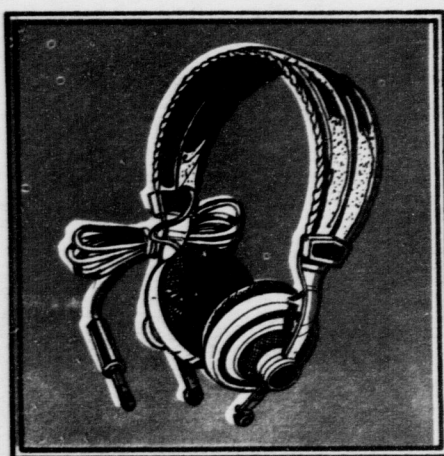


PIONEER stereo system
complete with integrated
amplifier and 2 speakers

PIONEER No. TX-500A AM/FM solid-state stereo tuner with FM muting switch. PIONEER No. SA-500A solid-state stereo integrated amplifier with 44 watts IHF power at 4 ohms, 2 phono inputs and 2 tape deck terminals. TWO PIONEER CSE-350 speakers: 2-way with 8" woofer, 3" tweeter. A great system at savings!

Reg. \$369.80 * Save \$81.80!

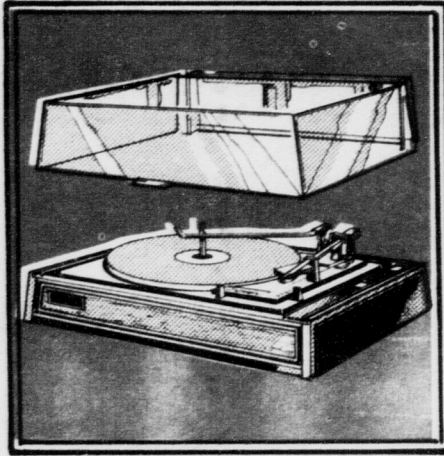
\$288



PIONEER STEREO HEADSET

Comfortable open-air design. Weight: under 8 ozs. 1 1/2" speakers for natural sound. SE-L20. regularly \$29.95.

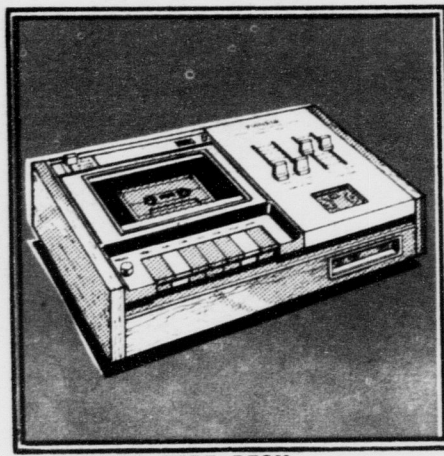
SAVE \$11.07 **\$18.88**



GARRARD TURNTABLE

3-speed automatic. Cueing / pause / anti-skating controls. Shure cartridge, base, cover. 42MS. Compare at \$96.80.

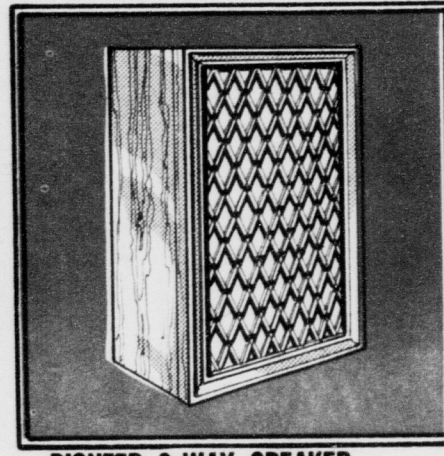
SAVE \$46.83 **\$49.97**



PIONEER TAPE DECK

Cassette recorder with unique pause lever, automatic stop. Piano-key controls. No. 3300. Reg. \$149.95.

SAVE \$32.95 **\$117**



PIONEER 2-WAY SPEAKER

8" woofer, 2 1/2" wide-dispersion tweeter. 25-watt maximum output. CS-44. Regularly \$74.95 each.

SAVE \$15.95 **\$59 EACH**



5744 S. PENNSYLVANIA

JUST NORTH OF I-96 FREEWAY

FREE DELIVERY • FREE SERVICE

EASY TERMS • INSTANT CREDIT • PHONE 393-9100

OPEN DAILY 10 TO 9 • SUNDAY 12 TO 6

Photo history long, complex

By RON BIAVA
State News Staff Writer

Interest in photography is growing at a fantastic pace, yet many people have little conception of how a photographic image is made. Also interest is growing among photographers and antique collectors in the early forms of photography.

was, and remains, one of the most intriguing forms of photography, it was not the precursor of the photographic print with which we are familiar today. This form developed from a system of positive printing introduced by two Englishmen, working separately, William Henry

Photography

Yet, many of these people know very little about the early processes, beyond being able to identify an image as "an old picture." The basis of almost all forms of photography is the sensitivity of certain silver salts to light. Exposure to light causes a chemical reaction in these substances which produces metallic silver.

This ability had been known for many years, but it was not until the early 1800s that research began on its application to the reproduction of images. Primary credit for this research belongs to two Frenchmen Joseph Nicéphore Niepce and Louis Daguerre.

In 1839 Daguerre announced the result of their combined efforts: a process for reproducing images from life on a silver-coated copper plate. These unique (non-reproducible) daguerreotypes held a delicacy of detail hardly approached by modern photography. Immediately successful, they were the first practical form of photography, and were popular from 1840 to 1860.

Modern precursor
While the daguerreotype

Fox Talbot, and Sir John Herschel. Talbot announced his process at about the same as Daguerre announced his.

These paper prints, which came to be known as talbotypes, or calotypes, were made by exposing a sensitized sheet of paper to light shone through a negative image.

The sensitive silver salts were carried on a translucent base, namely, a waxed paper. This sensitized material was exposed, in a simple camera, to the light reflected from a scene. Where the sensitive material was struck by light reflected from the scene, metallic silver was produced, through a subsequent development process. The silver appeared dark on the negative, but represented bright areas in the actual scene. Areas of the scene which reflected little or no light to the camera, such as black clothes or shadows, caused less silver to be produced on the sensitive material.

Negative created

Thus, the image created was a negative, or opposite, of the tones in the actual scene. A positive image was produced by passing light through the negative onto a

more opaque sheet of sensitized paper.

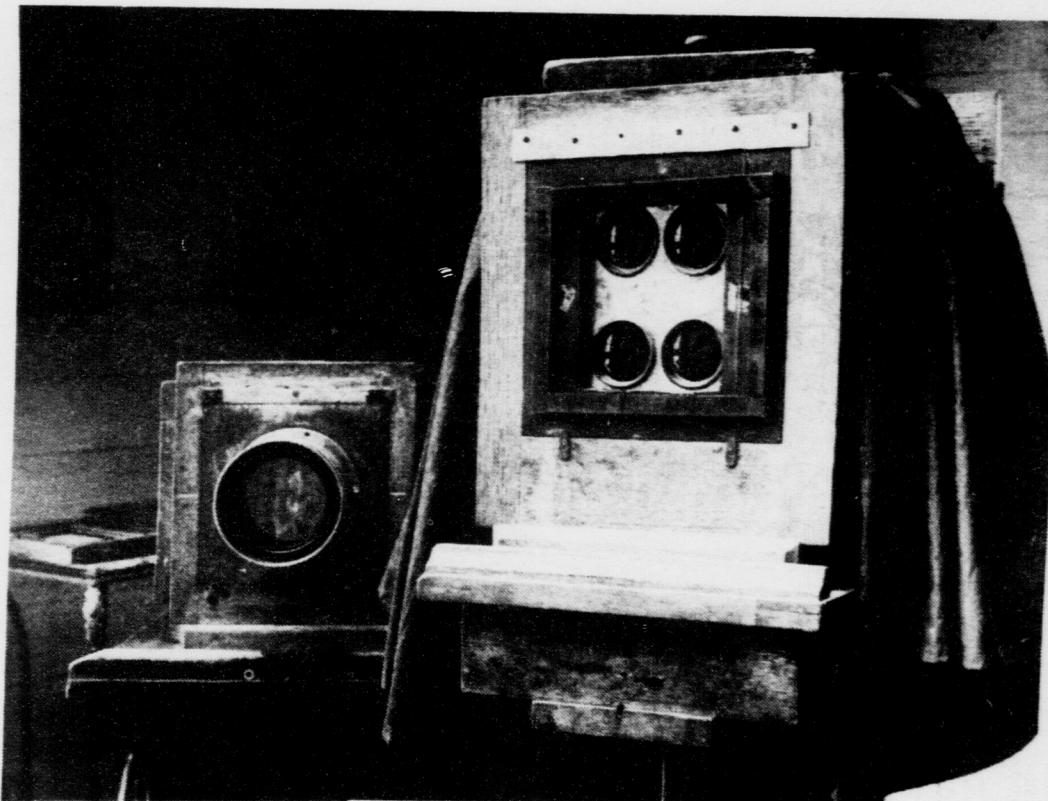
The dark, silver-laden areas of the negative, which represented bright areas of the original scene, held back the light and did not allow much of the sensitive substance on the paper to react. Little silver was produced in these areas, so they appeared bright on the print, as in the original scene.

The clearer areas of the negative, holding less silver, allowed more light to pass through and strike the paper. A greater reaction occurred in these areas of the print, more silver was

Times past

Greenfield Village features a fine exhibit of photographic techniques past. Pictured here is a closeup of two wet-plate cameras. Note the appearance of the multiple lensed camera with open shutter.

State News photo by Ron Biava



produced, and consequently these areas appear darker in the print, as in the actual scene.

Even though this process was the precursor of modern photography, it was not immediately successful. The waxed-paper negative did not give consistently pleasing results.

Major drawback

A major drawback which remained until the 1850s, despite improvements, was the great amount of time which printing required. Printing paper had to be sensitized by hand in the darkroom shortly before prints were to be made, and

then allowed to dry, without being exposed to light. To expose the paper, one needed bright sunlight for a long period of time, often at least an hour.

A major improvement in the negative was the wet collodion process, first described by Frederick Scott Archer in 1851, used to make glass negatives, ambrotypes, and ferrotypes. This is the process used today in the tintype studio at Greenfield Village, in Dearborn, one of the few places in the United States where these forms of

(continued on p. 5)



Open

7³⁰ - 5³⁰

MSU BOOKSTORE

**Record Sale Starts
Mon Feb 19 at
MSU Bookstore**

Come On Down & Choose from
a wide selection of records
priced \$1.98 & up

In the Center
of Campus

Photo school unique in state

By DAVE MENDREA
State News Staff Writer

Few people realize that Michigan's only licensed school of photograph is right here in East Lansing.

Small World Photographic, located at 301 MAC Ave. below what used to be Tom Sawyer's Bookraft, could be the answer to the prayers of many students who can't get into Studio Art 200 or 300 and are tired of making the bathroom double as a darkroom.

About 40 students are currently enrolled in evening classes ranging from fundamental to advanced technique in photography, and successful work can be exhibited and sold there as well.

For those who want to work by themselves, darkrooms and various equipment are available for rent.

Small World is the brainchild of Tom Greer, a 1970 graduate of MSU and a long time resident of East Lansing. It began as a freelance effort at child and animal portraits three years ago.

Greer is not a newcomer to photography having done many films for the University's Instructional

Media Center where he was an engineer.

Another phase of Small World Photographic is the Galliard Gallery where various types of artwork are displayed.

"We think the East Lansing community deserves its own art gallery," Greer said, "but galleries are rarely economically self-sustaining."

So Small World depends on diversity to stay alive. In addition to the school, wedding photography, portraits and passports, Small World is equipped to shoot and edit films.

Some of their current projects include a technical film for Edward W. Sparrow Hospital.

Greer is optimistic about the future of his four-month-old enterprise.

"Our biggest problem right now is that people don't know we're here," Greer said. "Once we become known, people will see that we have a lot to offer the East Lansing community."

Paul Heavenridge, also an MSU graduate, and general manager of Small World since its beginning last November, would like to keep the business student-

oriented.

"Unless you're an art student or professor who can exhibit at Kresge Art Center, there is no place in East Lansing to study photography or show and

sell artwork and prints," he said.

Nine students are studying at Small World and receiving credit from the University through independent study programs

in various departments.

Plans for the near future include hosting this year's Midwest Film Festival for student films, a photo contest early this spring and some specialized workshops for advanced photographers.



It's a small world

Small World photographic provides not only an outlet for photographers to sell their work, but also as an educational center where people can learn about all types of photography.

State News photo by Dave Mendrea

SMALL WORLD PHOTOGRAPHIC

CREATIVE EXPRESSION IN PHOTOGRAPHY

- ★ COMPLETE PHOTOGRAPHY COURSES — ACCREDITED STATE OF MICHIGAN
- ★ PHOTOGRAPHY GALLERY
- ★ FINE ART GALLERY
- ★ PORTRAIT WORK
- ★ PASSPORT SERVICE
- ★ DARKROOM & STUDIO RENTALS
- ★ PHOTOGRAPHIC SEMINARS
- ★ WEDDINGS

301 M.A.C. EAST LANSING 351-3644

GALLERY GALLIARD

Close-up camera lens opens new photo world

By CRAIG PORTER
State News Staff Writer

A photograph or slide of a grasshopper shown 10 to 50 times life-size has an impact that no one can ignore. One either likes it or he gets sick. With a few accessories, most cameras can be adapted for

capabilities. If you want to go all out, you can buy special macro lenses that focus from nine inches to infinity. They cost, so think at least twice before spending the \$150 to \$250.

The auxiliary lenses screw into the normal lens of your camera, and, with the

macro lens do you find that the focusing ring on the lens makes any noticeable difference in picture sharpness.

The most versatile close-up accessory is the bellows. This attachment is the most flexible because it allows you to vary the image size by merely extending or shortening the extension of the lens from the camera.

Any of these attachments will enable you to photograph bugs and small objects, but certain characteristics must be observed to gain the sharpest pictures. First, depth-of-field, the depth of sharpness in a picture, is very shallow in close-up photography. Second, any camera or subject movement will blur the picture because of the shallow depth-of-field. Third, as the lens is set farther from its normal position, more light is required to properly expose the film.

All this adds up to a need for fast films, small f-stops, and high shutter speeds, plus firm support for the camera, such as a convenient tree, wall or tripod.

Close-up photography thus becomes a sport for bright, sunny days. With such a day, some fast slide or black and white film, a steady hand or support of some kind, and plenty of patience, you are prepared to crawl around on your hands and knees, camera in hand, searching for that elusive butterfly, grasshopper, or flower. Start with something slow, such as a turtle, and work up to photographing wasps and

bees on the run. The impact and detail you capture will astound and impress your friends, and perhaps influence your enemies. It will also renew in you the

thrill you first had when you bought that camera, but which has since subsided due to lack of exciting and new subject matter.

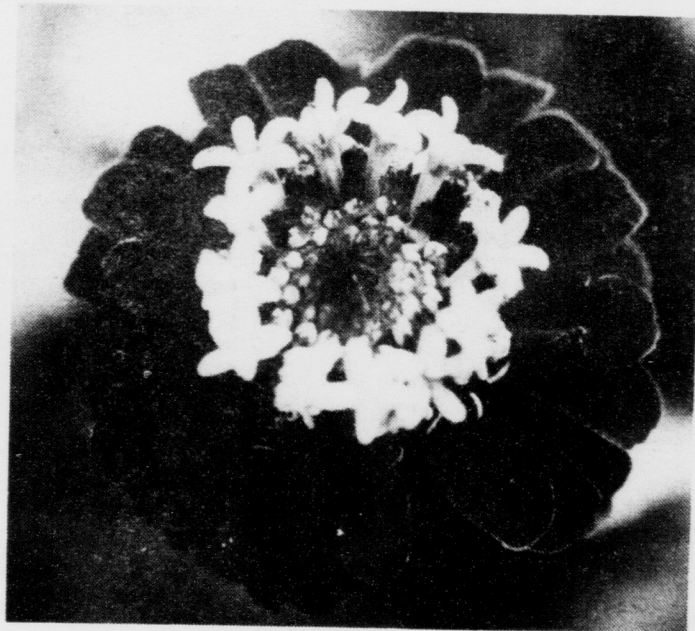
Closeups

photographing tiny objects.

The easiest camera to adapt to close-up photography is the 35-millimeter single-lens reflex. Looking directly through the lens, one can easily see what is going onto the film. Extension tubes, bellows extenders and auxiliary close-up lenses are the least expensive attachments that will give your camera close-up

addition of one or more of these, you simply move your camera to - and - fro a few inches away from the subject until it comes into sharp focus.

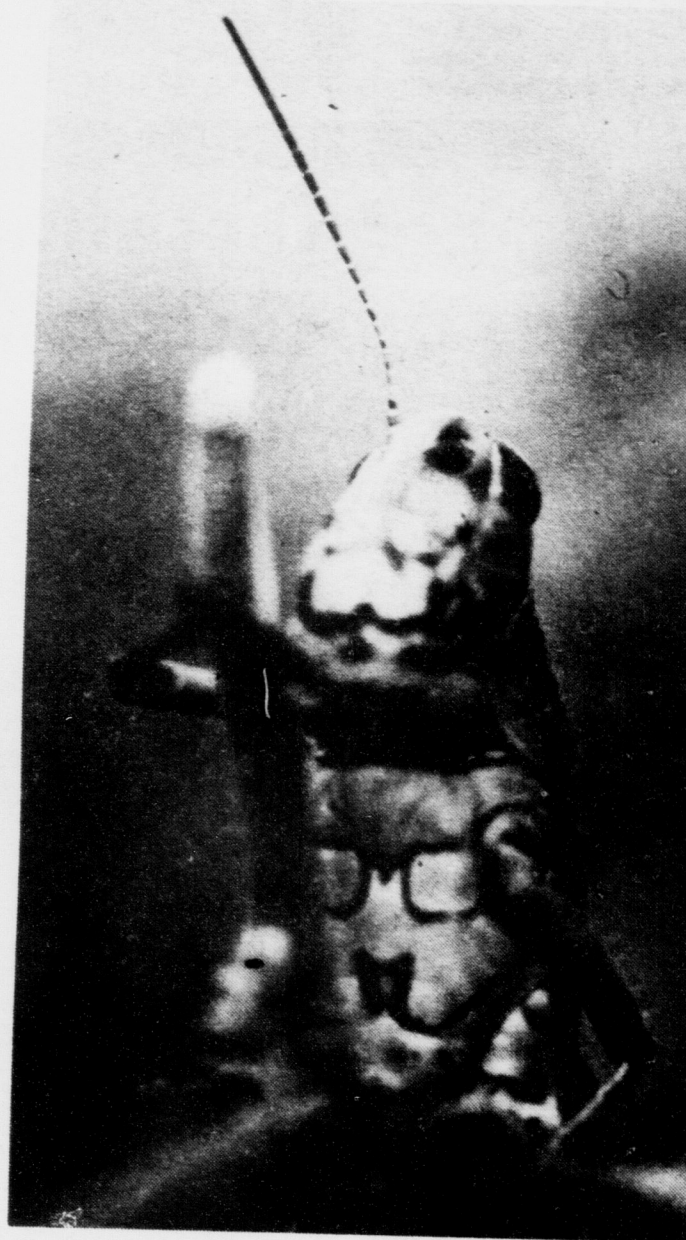
Extension tubes are placed between the camera and the normal or short telephoto lens, and the camera is focused by, again, moving the camera until the subject comes into focus. Only on the expensive



Hidden beauty

Close-up photography allows the camera to open up this beautiful world of ours and allow us to examine in even greater detail.

State News photo by Craig Porter.



Miniature giant

With the aid of close-up photography this grasshopper achieves truly gargantuan proportions.

State News photo by Craig Porter

Photo history long, complex

(continued from p. 3)

photography are still practiced.

Collodion mixture

Collodion is a thick liquid, about the consistency of pancake syrup, made by dissolving nitrocellulose (gun cotton) in a mixture of alcohol and ether. An iodide, usually of potassium, and later bromide, was added to the collodion.

This mixture was poured on a glass plate, to which it adhered. The coated plate was then placed in a bath of silver nitrate, where particles of light-sensitive silver

iodide formed in the collodion coating.

Once sensitized, the plate was placed in a protective holder, and immediately exposed in a camera for approximately five to thirty seconds, depending primarily on the amount of sunlight.

If at any time during the process the plate was allowed to dry, its sensitivity was lost. Therefore, development was begun immediately after exposure.

If a photographer wished to take pictures outside his studio, he carried his darkroom with him as a tent or a wagon. Matthew

Brady's famous Civil War photographs were made in this manner, being developed in a darkroom wagon on the battlefield.

A popular but shortlived form of photography which utilized wet collodion was the ambrotype, a glass negative atop a black backing, which appeared about 1854.

The clear areas of the negative allowed the black backing to show through, while the silver areas reflected light to appear bright. Thus, the appearance of a positive picture was obtained without the work of making a paper print.

Loses favor

Though the ambrotype was popular, two developments caused its loss of favor. The first were the rapid improvements in paper printing, which gave the paper photograph a position of importance which it has held to the present. The second was another wet collodion process, the ferrotype, or tintype, patented in the United States by Hamilton L. Smith in 1856. (The ferrotype was made on an iron plate which was coated with a very smooth black enamel or lacquer finish. This was known as a japanned plate. The

ferrotype was prepared and exposed in much the same manner as the ambrotype; the negative image in the collodion appeared positive against the black plate.

Long exposures

The exposures were still long, requiring the subject to remain very still with the aid of a head clamp. The ferrotype, being cheaper and more durable than either the daguerreotype or ambrotype, and much quicker to produce than a paper print, became tremendously popular with the outbreak of the Civil War.

In the camera market? Decide on needs, goals

By C. L. MICHAELS
State News Staff Writer
Are you considering buying a quality camera (better than an Instamatic and more expensive), but can't fathom the super sales pitches liberally spiced with unintelligible technical terms by knowledgeable salesmen and "advanced"

amateurs? "Don't panic as it is not as hopeless as it may seem to you and thousands of others."

Before walking into a camera store and laying out that limited supply of money, consider first what you want to photograph. Do you want a general all-purpose camera for

everyday photography, or do you want one that will take good portrait pictures of friends and relatives?

Or, perhaps, you would like to get good close-up shots of flowers and insects or copy printed material. Then, again, you may want a camera that can be attached to a microscope or

a telescope.

Maybe, you want a camera that can do a wide variety of things and have interchangeable lenses that will let you photograph a wide-angle view of a crowded room and then step outside and get a picture of a bird 100 yards away.

Or the quality of the final photograph may be the most important goal in mind. The compactness of a camera may be influential to you if you plan on using it during extensive traveling.

When thinking about what you are going to be photographing, also consider the types of film available. For high quality work, the larger film sizes perform better.

The largest films come in individual sheets (hence the name sheet film), are the most expensive to use and require considerable knowledge and training in their use.

The 120/220 roll films are fairly common and come wrapped in paper with leaders to facilitate loading.

Most cameras using these films produce negatives or slides 2 1/4 inches square, though a few of the more expensive models produce slightly larger negatives and slides. The 220 film is twice as long as 120 (the most common), yielding twice as many exposures per roll.

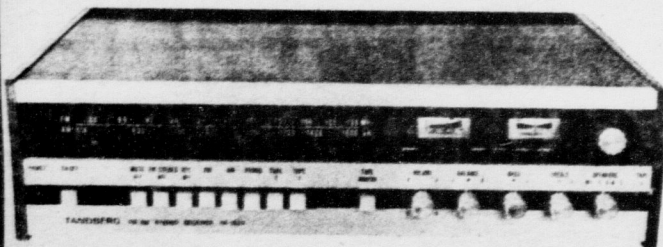
By and far the most popular film size is 35 millimeter (35mm), with most cameras producing negatives or slides 24 millimeters high by 36 millimeters wide. The film comes in cartridges of 20 or 36 exposures and a seemingly endless variety of different types.

There are smaller film sizes (subminiature) that have limited uses and quality. The compact nature of cameras using small films is appealing to some people, but the lack of versatility and quality dampened any popularity they might have known.

If you want a large film format, the cameras that use it are generally larger than the ones that use smaller formats. There are also the different types of cameras to consider. Most cameras that amateurs use are either reflex cameras or rangefinder cameras, and use either 35mm or 120/220 films.

Rangefinder cameras generally use 35mm film and are the least expensive, though some models are of extremely high quality and price. Rangefinder refers to the focusing aid used in the viewfinders (what you look through to frame the subject) of the cameras. The rangefinder produces two images of the subject until the images blend into one. Rangefinder cameras are compact, offer critical

These two Tandberg products generate pleasure, enthusiasm and inspiration, as well as good sound.



TUNER

The Tandberg Stereo Receiver TR-1020 contains a highly sophisticated AM and FM tuner built up of dual gate MOSFET transistors. Built-in decoder for FM stereo reception. Muting effectively suppresses interstation noise during tuning. Black dial remains dark until power is turned on, then lights up on crisp contrast to provide pleasant, easy tuning.

POWERFUL AMPLIFIER

With its high power output, 2 x 40 Watts continuous sinus at 8 ohms load, the TR-1020 is the ideal control center for every stereo system. The output stage features extraordinarily low crossover distortion (full complement of output terminals). Series capacitors provide your external speakers with maximum protection. Electric short circuit protection of output transistors. Thermostat

provides protection against damage in the event of insufficient cooling. The Tandberg TR-1020 is provided with volume control and a balance control. Separate bass and treble controls for each channel. These latter permit individual channel adjustment to be made. Loudness compensation can be added to the volume control.

INPUTS/OUTPUTS

The TR-1020 has inputs for a record player (RIAA equalized pre-amplifier for magnetic pick-up) and up to three tape decks. All inputs have adjustable sensitivity. The tape monitor facility makes it possible to monitor from either the tape itself or from the source while recording (A and B-test, explained on page 17) using a tape deck with separate recording and playback heads as, for example, the Tandberg Series 9000X, 6000X, 3300X or 3000X;

The Tandberg Series TCD 300 Stereo is an entirely new cassette tape deck which meets the specifications set forth in DIN standard 45500 for high fidelity equipment to full satisfaction. Designed and manufactured at the Tandberg Radiofabrikk in Norway, Series TCD 300 meets the stringent quality requirements imposed on all Tandberg tape machines.

THREE MOTORS

The Tandberg Series TCD 300 has three motors (one hysteresis synchronous motor and two DC reel motors). The 2 separate winding motors make it possible to reduce the full-length winding time for a C 60 cassette to about 40 seconds.

The tape handling mechanism features rugged design and construction to assure excellent stability and reliability. Motors turn off automatically at end of tape for both recording/playback and fast forward/rewind, and the pinch rollers disengage tape. This eliminates risk

that the tape will remain under pressure or in tension while the tape deck is not in use, and thereby ruin the cassette.

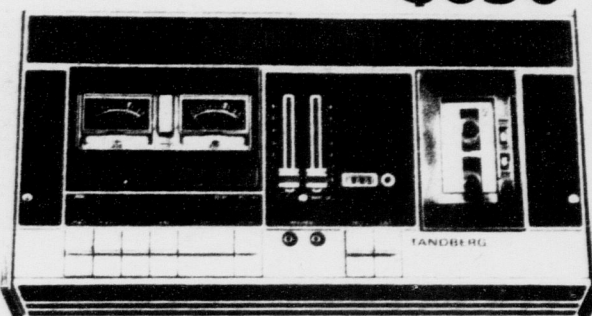
SOUND HEADS

Because the sound heads used in Series TCD 300 are made of hot-pressed ferrite, they can be guaranteed against wear throughout the service life of the tape deck.

DOLBY SYSTEM

The Tandberg TCD 300 Stereo features a built-in Dolby noise reduction system. This system reduces tape noise by about 10dB relative to conventional systems and enables the Series TCD 300 to satisfy the signal/noise ratio requirements set forth in DIN standard 45500. The Dolby system is of special importance in a cassette tape machine for four reasons: tape noise is high, tapes are narrow, magnetic coatings are thin and tape speed is low. The Dolby system can be switched on and off.

\$350⁰⁰



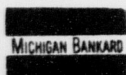
\$429⁸⁰

TANDBERG

"The Norwegian Products with a World-Wide Reputation"

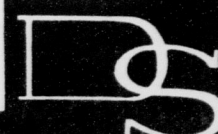
HI-FI BUYS

1101 East Grand River Avenue 337-2310
Across from Colonel Sanders'
open MTT 9 - 5:30 WF 9-9 Sat. 9-5

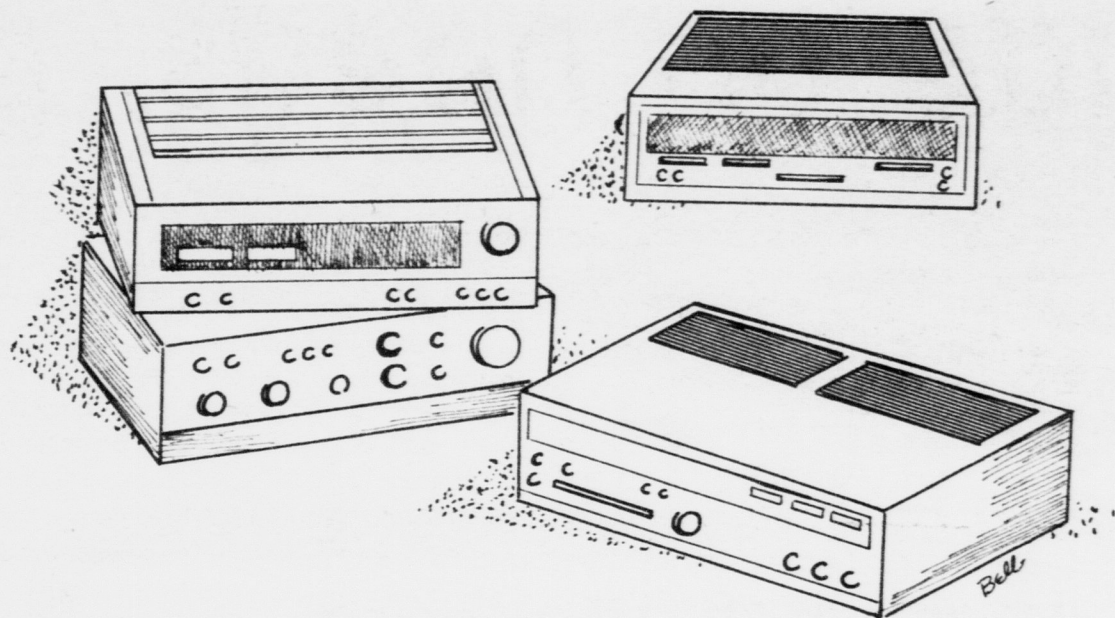


Disc Shop

323 East Grand River Avenue 351-5380
Next to Jacobson's
open weekdays 9-9
Sat. 9-6



(continued on p. 34)



Many stereo amplifiers fail to give ample sound

By R.C. SMITH
and
GARY OZANICH

A stereo is more than a record player. It is a vehicle for emotions, an outlet for aggression, compensation for inadequacies, and vindication for humiliations. You can even play records on it.

The vital force of any sound system is provided by the amplifier. If you've looked at amplifiers you've undoubtedly come across various initials, abbreviations, and phrases which could easily confuse you. This article will hopefully, help to clarify some questions.

Distortion

As befits a nation which made a pen that can write on the moon, we have amplifiers that deliver power without distortion. Distortion, in case the word is already archaic, refers to any deviation of the output from the input. That is, since the purpose of an amplifier, as the name implies, is to amplify the signal of something, distortion would refer to any change that might occur to the signal (besides the amplification, obviously) as it goes through the amp.

Distortion is traditionally expressed as total harmonic distortion, and as a percentage of output power. If it is measured at full rated

power and from 20 Hz. to 20,000 Hz., a total harmonic distortion of 0.1 per cent is very good, and lately very common. Up to 0.5 per cent is perfectly acceptable to most listeners.

In testing for total harmonic distortion, a signal of one frequency is used, a rather poor approximation of music. A more relevant figure is the intermodulation distortion which is obtained from simultaneous low and high frequency signals. The interaction of the two is probably more representative of the more offensive forms of

of 60 db. is very good for an amplifier with integrated preamps (as opposed to just a power amp with separate preamps), but some amps do better than 100 db. Noise is primarily a problem of preamps, and distortion of power amps.

One more form of distortion is phase distortion. But, until someone redesigns air, it's as inevitable as the 11 p.m. news.

Measurement

The three most common power measurement techniques used on audio amplifiers are continuous

as RMS power, though all three ratings could be given in RMS. The difference lies in the fact that continuous power is what the amp will deliver for an indefinite period of time, and is the most conservative of the ratings. If you plan on running the assembly line at Fisher Body with your amp, this may be all you need to know. If you plan on listening to music you may want to give another look at the much maligned Institute of High Fidelity ratings.

Differences

The reason for the different power ratings is that a power amplifier with an unregulated supply, which includes nearly all audio amps, can deliver more power under transient conditions than under steady-state conditions. Similarly, the peak power levels in music are ten times higher than the average power. One could expect a truer indication of an amplifier's ability to reproduce music if in addition to the continuous power, he knew how much the amp could deliver for short periods of time. Obviously, there is a myriad of problems in attempting to quantify such a property, but the Institute of High Fidelity test (when done properly) gives an honest evaluation of the amount of effective power an amplifier

delivers with real program material.

Another thing to watch for is the power bandwidth, usually given as the frequency limits at which the power drops to one-half its maximum. Most human beings could find 20 to 20,000 Hz. adequate.

Impedance

The power will also be at a given impedance — either 4, 8, or 16 ohms. Most amps put out maximum power at 4 ohms. So naturally, they are rated there, but most speakers are 8 ohms. Now, we come to the point of all this: how much power do we need?

Most speakers today require at least 20 watts per channel to even make you flinch and some can handle up to 1,000 watts for a short time. This is covered in the article on speakers, but there is one more bummer you may like to dwell on next time you're trying to shatter your roommate's windows with your woofers. Many amplifier manufacturers are quite modest in their power ratings in order to get a good distortion curve "at rated output." Don't you hope that the people who made your fabulously expensive speakers were equally modest about the amount of power the speakers can handle?

Amplifiers

distortion contributed by the amplifier. At a given power level, intermodulation distortion generally runs from two to six times the total harmonic distortion though, of course, the lower the better. Intermodulation distortion gives an expanded insight into amplifier limitations when total harmonic distortion figures are so low as to be almost meaningless.

Noise

Noise is unwanted sounds not related to the signal being amplified. It is expressed as a signal to noise ratio (S/N) and the higher the better. A rating

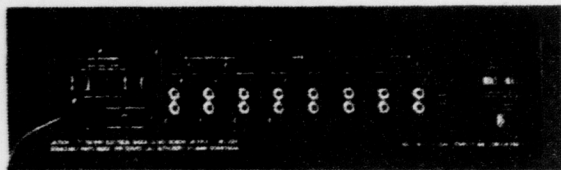
power, Institute of High Fidelity dynamic output rating, and Electronic Industries Assn. music power rating. The Electronic Industries Assn. is by far the cheesiest, and might be better called the Electronics Industries profit rating. It is used by primarily manufacturers of home entertainment consoles, portable phonographs, and other bad deals. It is measured at 10 times past the point at which one can no longer distinguish Beethoven's ninth from Black Sabbath's first. Continuous power is sometimes still referred to

Knapp's



start with the receiver

A good music system starts with a good stereo receiver. A stereo receiver is a combination of a stereo amplifier and AM/FM stereo tuner, so that's the logical place to begin your buying. Picking the right receiver is no picnic. Because receivers by themselves don't do a thing you can see or hear. They just receive tiny sound impulses from a record, tape or radio station, magnify them millions of times, with as little distortion as possible, and drive the speakers with the magnified impulse. All of which means that two of the most important things to look for in receivers are how much distortion takes place and how much power there is to drive the speakers. Distortion rating (called T.H.D.) are simple. The lower the number the better. For example, Sylvania receivers CR2742 and CR2743 both have a rating of 0.5% at full output, which is considered good. Power is a bit more complicated. There are several kinds of ratings. But the one that counts is the continuous or RMS rating. Here the higher the number the more power you have to drive the speakers. A receiver like Sylvania CR2742, with a continuous power rating of 25 watts per channel, can easily drive four big speakers. If you want an even larger system, with speakers all over the house, the Sylvania CR2743 can handle them with a continuous power rating of 50 watts per channel. If you can't get a continuous power rating, be suspicious! The next thing to check are the features. A good stereo receiver should have solid-state circuitry Field Effect Transistors (FET's) and ceramic filters. We won't go into their technical functions here, but be sure to look for them while buying. Quality receivers will have them. Your receiver should also have a full-function jack - apanel (like the one on the back of the Sylvania CR2743 shown below) that allows you to add extra speakers, tape decks headphones or other equipment. And make sure there's built-in capability to adapt the new quadrasonic sound systems in case you want to expand in that direction. Every Sylvania receiver for example, has built-in Phase Q4 matrix four-channel circuitry to enhance ordinary two-channel stereo. This gives the effect of four-channel sound. In addition, you can get true (discrete) four-channel sound simply by adding our special news DMQ2784W quadrasonic converter. (And of course in both cases you need two extra speakers.



The CR2743 gives you all that and 100 watts total continuous power for \$279.95*. So no matter what brand you choose, make sure you get just as much for just as little.

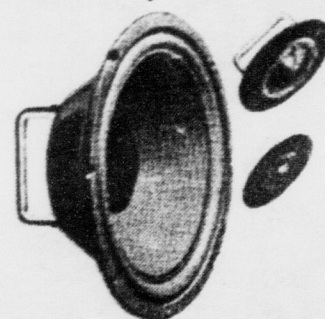
onward to the speakers

The technical stuff's out of the way. Now comes the fun part. The only way to buy speakers is to listen to them. Compare the different sounds from the different sizes. Ask the salesman about "air" or "acoustic" suspension speakers. In general they deliver the most satisfying speaker sound. Make the

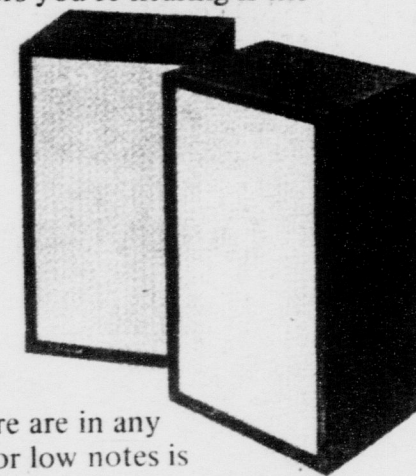
how to get the most music for your money

salesman work a little. Switch back and forth between the big medium, and small speakers. Play it by ear. The ones that sound best to you are the ones to buy. Just keep your eyes out for a few things while your ears are busy. Make sure the receiver driving the speakers you're hearing is the same one your buying. Otherwise you won't be getting the same

sound once you get home and hooked up to your receiver. And remember the word "speaker" refers to two things. It means the individual speakers...woofers, tweeters, etc. But it also refers to the whole speaker cabinet, which generally contains more than one individual speaker. Be sure to check out how many speakers there are in any speaker cabinet. Two, a woofer for low notes is



a 6" minimum, and a tweeter for high ones. Bigger speakers, like the Sylvania AS125A, will have at least three: a woofer, a dome mid-range and a dome tweeter. Prices range from 149.95* for the big Sylvania AS125A with 59.95* a pair for the Sylvania AS1706W with two speakers each. But above all else, pick the speakers that sound best to you.



now it's the turntable's turn

There are a few manufacturers who specialize in making turntable mechanisms. It's their thing, and their product is definitely superior. The only trick to buying a turntable is to make sure that you get one whose guts come from one of these specialists.

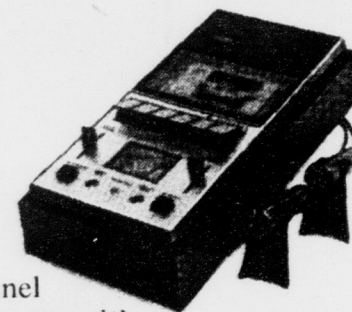
Any audio manufacturer should be more than happy to tell you who made his turntable mechanism. For example, Dual (one of the big names) made the changer in Sylvania's T2705 Automatic Turntable. Garrard (that's another big one) made the changer in our model T2703. Ask for magnetic cartridges in your turntable. They're more sophisticated and pick up sound impulses better than ceramic cartridges. Both Sylvania turntables have them. Things like cue-phase control (which equalizes pressure on both walls of a record groove to give less sound distortion) are usually standard on quality turntables like Sylvania. Price guidelines are 139.95* for the T2705 and 79.95* for the T2703.



e-x-p-a-n-d-i-n-g

Adding tape facilities is a simple way to expand your stereo system. You can add a Cassette Play/Record Tape Deck like the Sylvania CT160 to play pre-recorded cassette tapes over your speaker system.

Or you record your own in two-channel stereo. Or, you can go the 8-track route, with a playback deck like the Sylvania ET2750W. That way you can use stereo tapes at home, and vice versa.



*Based on manufacturer's suggested listed price.

Home Entertainment Center, Capitol Avenue, Meridian Mall, Lansing Mall and Westwood Mall, Jackson.

Look what \$2⁷⁹ can still buy you . . .



Check our specials rack for new releases at sale prices . . .

Mahavishnu Orchestra - Birds of Fire
The Best Of Mountain Loggins and Messina —
Your Mama Don't Dance Laura Nyro —
The First Songs

\$3²⁹ ea.

On Columbia
Epic and
Monument
Records

the Disc Shop

Next to Jacobson's 323 East Grand River 351-5380 open weekdays 9-9 Sat. 9-6

Compliment your Intelligence

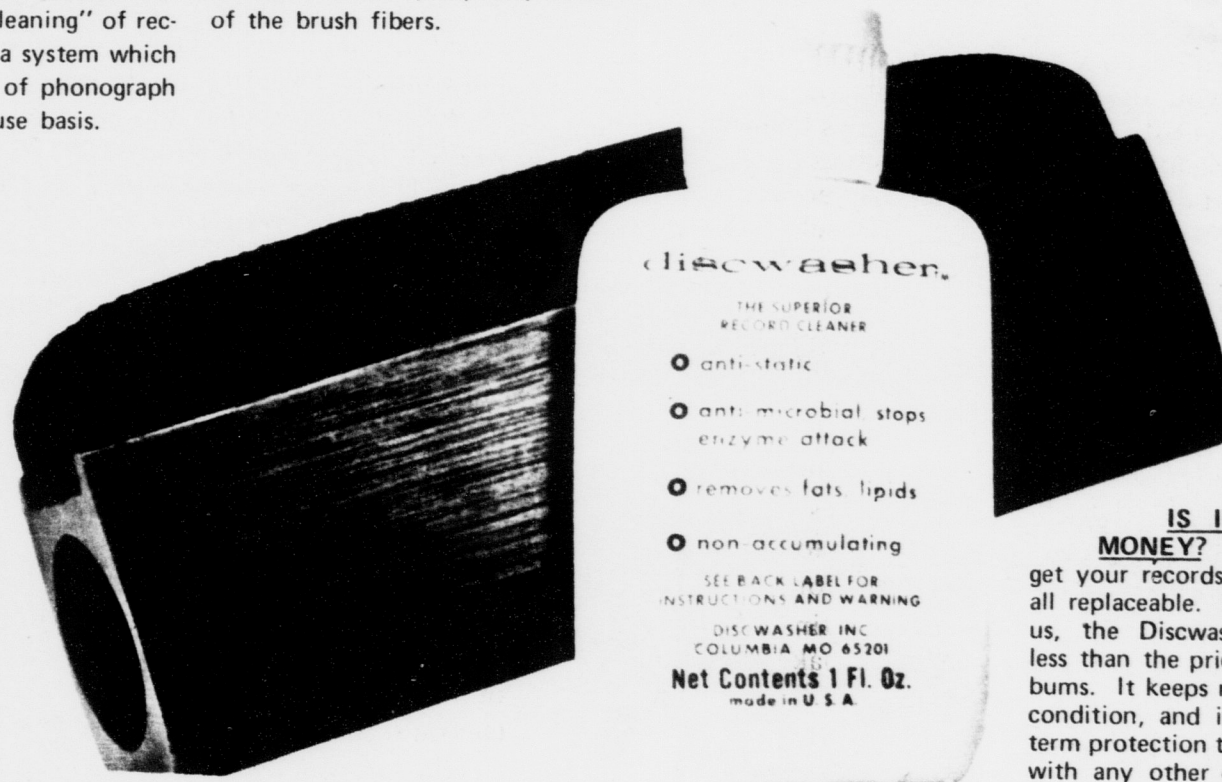
WHAT IT IS

The Discwasher system is a superior record cleaning kit that consists of two parts which work together: The Discwasher fluid, an especially designed brush with a walnut handle which also serves as a storage unit for the fluid bottle. The Discwasher system is not simply a device for occasional "major cleaning" of records. Instead, it is a system which gives superior care of phonograph records on a daily-use basis.

WHAT IT DOES

The Discwasher system safely cleans and protects records. Using a scientifically developed fluid, and a newly directed-pile fabric, even micro-dust and debris are lifted from the record surface. Solubilized finger prints and deposits are taken off the record by capillary action of the brush fibers.

In addition the Discwasher fluid gives long-term protection against fungi which literally grow on, obstruct, and eventually degrade delicate vinyl polymers. This is not a put on: ask anyone who has lived in the tropics!



IS IT WORTH THE MONEY?

No, not if you get your records free and they are all replaceable. But for the rest of us, the Discwasher system costs less than the price of three fine albums. It keeps records in like-new condition, and it gives them long-term protection that is not available with any other cleaning methodology. If you can afford records, you can afford a Discwasher system.

AVAILABLE FROM THE FOLLOWING DEALERS. . . .

Hi Fi Buys
1101 E. Grand River
East Lansing

The Disc Shop
323 E. Grand River
East Lansing

Marshall Music Co.
402 S. Washington Ave.
Lansing

Marshall Music Co.
245 Ann St.
East Lansing

Your
4-Channel
Headquarters

Your
4-Channel
Headquarters

Now the world's "most expensive"
tuners and amps don't cost a fortune

marantz®

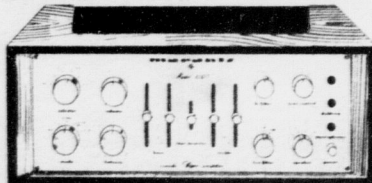
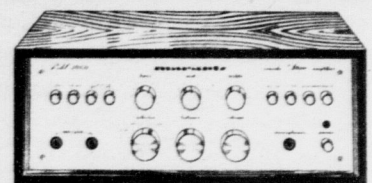
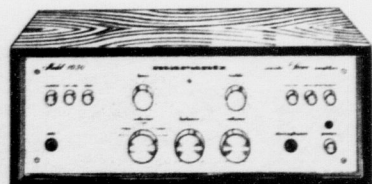


Here's the rest of the Marantz tuner family. The model 105 (top) is the least expensive Marantz tuner made at just \$149.95. If you demand the top of the line, select the model 120 (bottom) at \$429.

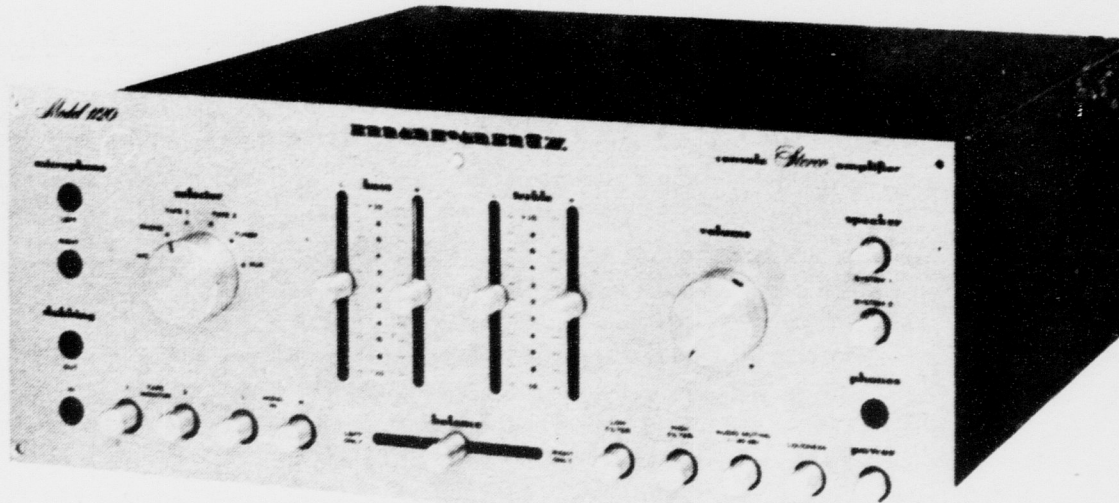
There was a time when the name Marantz not only meant "the best" — it also meant "too expensive" for many people. But times have changed. While Marantz is still the best in the view of many experts, *you can now afford it!*

Take tuners, for example. The full-featured Marantz model 115 above sells for \$249.95. Now that's not cheap, of course, but it's a remarkable unit for the investment. If you'd like to spend less — or more — for a Marantz tuner, check out the models 105 and 120.

Better yet, come compare all three at the Stereo Shoppe. We'll show you how you can own the "most expensive" without spending a fortune!



Here's the rest of the Marantz stereo console amplifier family. The model 1030 (top) delivers 30 watts RMS and is the least expensive Marantz amp. made at just \$149.95. For 60 watts RMS, select the model 1060 (middle) for just \$199.95. The model 1200 (bottom) is the most powerful console amplifier you can buy with 200 watts RMS. \$595.



Here's more evidence that Marantz quality doesn't have to be expensive. We've pictured the complete line of Marantz stereo console amplifiers for your comparison.

The specifications for the top-of-the-line unit are: 20 Hz to 20,000 Hz with under 0.15% THD and IM distortion plus or minus 0.1 dB frequency response. Truly the kind of specifications you'd expect from Marantz. But compare those to the specs. of the *least* expensive unit: 30 Hz to 20,000 Hz with less than 0.5% THD and IM distortion plus or minus 1dB frequency response. Only an engineer can appreciate the difference — *you ear can't!*

The major difference is power ratings. The most expensive delivers 200 watts continuous RMS, while the least expensive delivers a modest, but adequate 30 watts. And with high efficiency speaker systems like the Marantz Imperial line, little power is needed to deliver full, rich sound.

Above is the Marantz model 1120 with 120 watts of power and a price of \$395. But take a look at the rest of the family. Then come hear them all at the Stereo Shoppe.

COMPLETE IN-HOUSE SERVICE
FOR EVERYTHING WE SELL

**the Stereo
Shoppe**

MARANTZ COSTS EVEN LESS
WHEN YOU BUY MARANTZ SPEAKERS
AND ELECTRONICS TOGETHER!

Your
4-Channel
Headquarters

543 E. Grand River Ave. (next to Paramount News in East Lansing)
10 to 5:45 Mon. thru Fri., 'til 9 Weds., 10 to 5 Sat. / Phone 337-1300

Your
4-Channel
Headquarters

Stereo sound begins at stylus

By JON OGAR

You've spent \$300 for the speakers and \$200 for the amplifier. Whatever you have left goes for the turntable.

Unfortunately, these are the priorities most people have when they buy a stereo system.

What must be realized is that stereo sound begins at the stylus of your cartridge. The best speakers and amplifiers cannot perform as well as they should if they aren't getting all the signals from the stylus.

Another thing to think about is your records. Your collection, after being played on a poor turntable for awhile, may sound terrible on your new, more expensive turntable.

So, if you are serious about good sound, and records are the heart of your sound library, start off right with a good turntable.

First of all, decide what type of turntable you want. There are manual and automatic turntables, with the manual playing only one record at a time and the automatic playing a stack of records.

Though hi-fi purists cling to manuals, automatics are very close if not as good as them in quality, plus they allow the convenience of playing a stock of records in succession.

Say you decide on an automatic. What should you look for?

Well, naturally you're going to be limited by your budget. But if it's possible get the very best table you can afford.

Better turntables will serve you better in the long run, and starting off with a good one is less expensive than first buying a cheap one and then buying another when you upgrade your system.

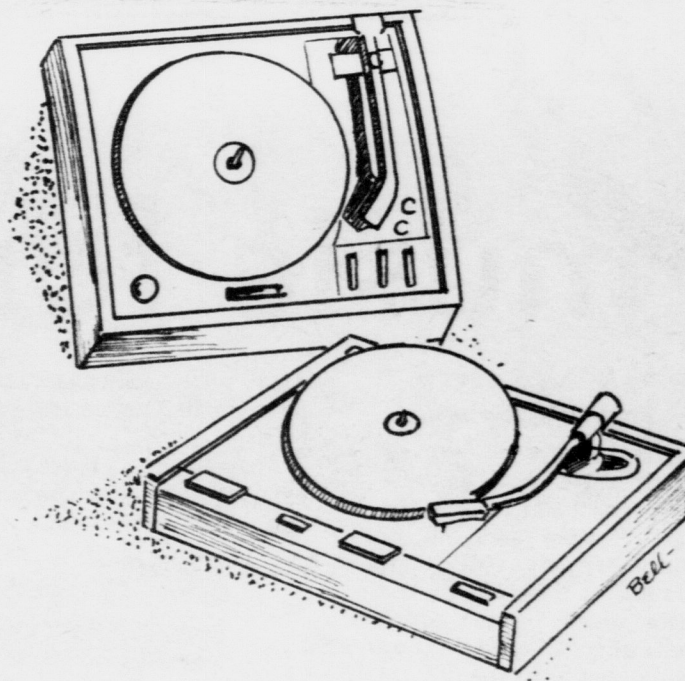
The most important part of the turntable is the tonearm, so you should start your looking there. The arm should have an adjustable counter balance, or otherwise the turntable must be perfectly level to avoid excessive cartridge wear.

Some arms just have counterbalances, but it really should be adjustable to get the right tracking force, which is the force required to hold the cartridge in the groove path of the record.

Another good feature to have is an antiskating device. Without one, the arm has a tendency to move toward the center of the record. This causes unequal wear on the inner side of the record groove, and also causes sound distortion and excessive stylus wear.

A nice feature is a cueing lever, which allows you to play a particular cut of a record.

There are two things to look for in cueing levers. One is the "damped" lever, which is superior to a manual lever, for it automatically slowly drops the stylus back onto the



record. This eliminates the possibility of roughly dropping the stylus onto the record and scratching it.

The other thing to look for is drift. It is frustrating to line up the needle only to have it drift sideways as it drops and miss the lead-in grooves.

A simple test for this is to activate the cue while a record is playing and then drop it again. If the record continues where it left off the lever is free of drift.

Turntables are driven by two basic types of motors: induction and synchronous. Generally, induction motors are found on tables below \$75. Their main advantage is that they start up quickly.

Sometimes you may be told that a model is a "professional" turntable. All that really means is that it will reach the record speed quickly, for it is important for disc jockeys to have their music start quickly. Many home turntables are better than professionals.

Synchronous motors are found in turntables priced \$75 and above, and are

some old 78s around make sure the table has that speed.

Change cycle: How long does it take for records to change? How smooth is it? Does the unit shut itself off after the last record?

Shock: At the store, tap gently the sides of a turntable which is playing a record to see how much shock it takes to make the needle jump. Some tables are very sensitive, and it's a shame to take the turntable home and then find out the needle skips every time you walk by it.

Now that you have the turntable, you need a cartridge. There are basically two types: ceramic and magnetic.

The ceramic cartridge has the advantage of not needing a preamplifier -- the signal travels directly to the amplifier. The trouble with ceramic cartridges, though, is that they need a lot of weight on the tone arm to track which results in rapid stylus wear and excessive record wear.

Magnetic cartridges are preferable because they

Turntables

noted for their constant speed which helps to reduce "wow" and "flutter."

"Wow" is the slow variation of pitch caused by speed fluctuation in the record movement, while "flutter" is the high variation of pitch. Both are sound distortions.

The amount of both "wow" and "flutter" should be no higher than 0.2 per cent with the lower the figure the better. This information can usually be found on the list of turntable specifications.

Another thing to ask about is "rumble." Rumble is a result of vibrations and wobbles by the motor which are picked up by the stylus, converted into an electrical signal and then sent through the speakers as low frequency sound.

Some more obvious things to check for:

Speeds: 33 1/3 and 45 rpm are sufficient for most people, but if you have

sound better, and they track lighter. Magnetic cartridges require pre-amplification, but this isn't much of a problem since most amplifiers have this built in.

What type of cartridge you get is dependent on your total system. You should have a magnetic one for any system over \$200.

There are also two basic types of styluses: conical and elliptical. The elliptical is the better, tracking lighter than the conical and giving a cleaner sound.

Two last points to remember: when you buy a turntable you buy exactly that. The base, dust cover and cartridge are all separate and cost extra.

The last point is that it is a good idea to invest \$5-10 in stylus care equipment. This may consist simply of a stylus cleaner and a preener to clean your records, but it will extend the life of both your stylus and records.

Area FM stations lack music for college town

By STEVEN ALLEN
State News Reviewer

There are a number of words which aptly describe the state of FM radio in the East Lansing area, all of them unprintable. East Lansing is probably blessed with some of the worst listening a college town could ever hope for.

This is not to say that all of the stations in the area are bad, for they are not. WKAR does some fine public affairs and classical music broadcasting. No one can knock WITL for country and there's no finer middle of the road music to be heard than that on stereo island, WFMK. The so-called rock station in the area WVIC often leaves a little something to be desired (Would you believe they play the Osmonds at 1 a.m.?) as do WFMK's ("The 101 Strings Play Three Dog Night") counterparts WJIM and WILS.

The real problem for the college audience is that outside of Audio Aftermath on WKAR every Friday

night, the amount of programming aimed at them is nil.

Unless one lives on campus, that is, where one can catch WMSN and its

the Federal Communications Commission (FCC). The reason lies in the fact that there are only three kinds of public airwaves licenses

is an FCC ruling making it illegal for the same station to operate both AM and FM channels. This would jeopardize either the FM or AM status of WVIC, WKAR, WJIM, WILS and WITL.

But keep in mind that this is just a possibility. Since the FCC has been making rules in the past that certain firms must divest themselves of certain licenses, it seems that eventually a one man, one license rule might come into effect. Until it does, however, Lansing radio should remain the same for some time.

The third type of license is really out of the question here. An FM educational station must spend half of its broadcast time on informational matters and, as mentioned before, there are no FM licenses available anyway. Further, they cannot mention anything commercial. WKAR used to be get in trouble even when they mentioned the words "kleenex" and "coke."

So the chances of WMSN

or any other student-oriented group getting a public airwaves channel in the near future stands as dim.

The best alternative at present for those who cannot stand East Lansing radio is to either get a very good receiver or to move somewhere else.

Those who see the situation as a little less hopeless should consider bringing a little pressure on local stations to change their format.

I just don't understand. It seems a station could get a lot more advertising revenue and higher rates if it addressed itself specifically to the wants of the largest radio listening audience in the area - the students.

More people are going to listen to Herbie Hancock, the Allman Brothers and Jethro Tull than Peter Nero.

Eventually one of the area's local Neanderthal station managers will wake up to this fact of life, also. Until that splendid hour, however, anybody want to hear "Crazy Horse?"

Radio

affiliate stations on the Michigan State Network.

Granted WMSN has its shortcomings, mainly an almost complete lack of professionalism. Yet even the incompetence of some of the WMSN disc jockeys is comforting compared to the high pressure 50,000 words a minute Bill Drake style programming found on many so-called rock stations.

What needs to be pointed out is that right now WMSN is about the best thing this community has, yet it can only be heard on the residence halls of MSU because it does not have an public airwave license.

To remedy this situation would require an assist from

available: AM, FM, and FM educational.

The AM airwaves in the area are filled. There is no space on the AM dial for another station which would not interfere with the signal of another.

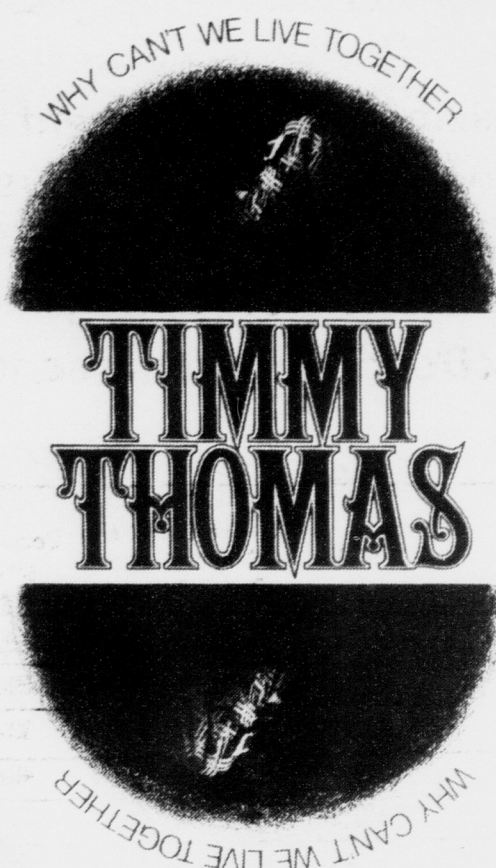
The situation is somewhat different for the FM channels. All the licenses allocated to the Lansing market on the FM dial have been taken up, but there is still some room left on the dial. However the FCC is not currently accepting petitions for FM channel availability at the present time.

This could change in the future.

Another possibility to look for in the coming years

THE TIMMY THOMAS ALBUM

Includes the
Million Seller
"Why Can't
We Live
Together"



Plus
Nine Other
Selections
by this
New
Superstar
Campus



Marshall
MUSIC CO.

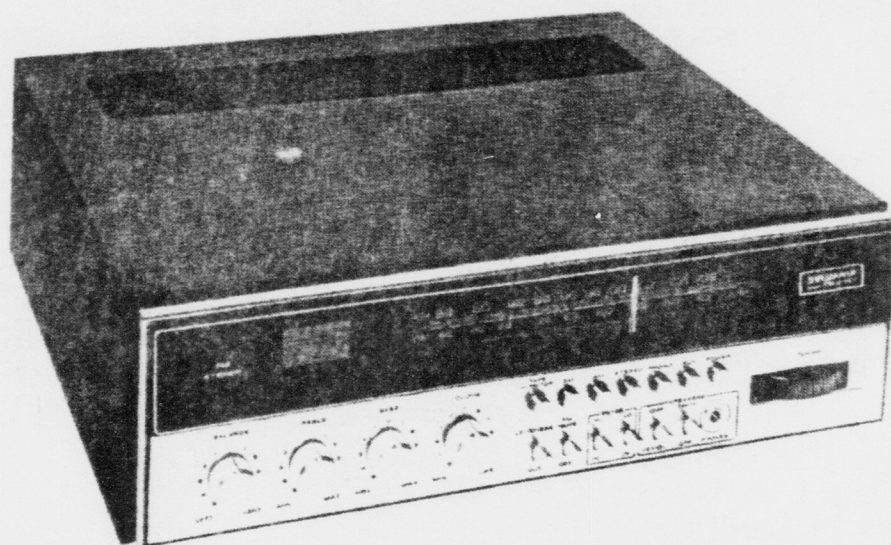
245 Ann St., E. Lansing
402 S. Washington, Lansing

MSU
Bookstore

Music Shop
Across from the Union

Knapp's

Who gives you the most stereo receiver
for 279.95?

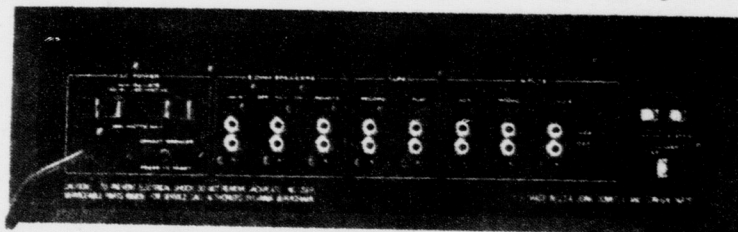


Fisher? Morantz? Pioneer? . . .

The chart below tells the story. It isn't Fisher or Marantz or Pioneer or any of the other names you're used to hearing that gives you the most stereo for the money.

It's Sylvania.

That's right. Sylvania gives you the most stereo features as well as specs. The Model CR2743 receiver has a full function jack panel. Built-in Sylvania PQ4 matrix 4-channel capability FET's ceramic IF filters. D'Arsonval tuning meter. Plenty of pushbuttons, switches and knobs for all functions. And so on. Still a little surprised?



No need to be. Sylvania's not exactly a new name in audio. We were one of the first in the field. It's just that we haven't been emphasizing the component end of it. But we're in the component business in a big way. With great values. Like CR2743 receiver. Or our CR2742 which is the most receiver for 199.95*. We've got speakers that are getting rave reviews in the stereo mags. And of course, we've got Dual and Garrard and BSR McDondald automatic turntables. But don't believe a word you read.

Come look at the equipment yourself. Listen to it.

See how much you get for how little. On this basis, any choice but Sylvania has to be second choice.

*Based on manufacturer's suggested retail price.

Brand	Model	Manufacturer's Suggested Retail Price	Amplifier			TUNER	
			Continuous (RMS) per channel 8 ohms	T.H.D. %	IM %	FM Sensitivity (IHF)	Capture Ratio (IHF)
Sylvania	CR2743	279.95	50/50	0.5	0.5	1.9uV	1.5dB
Marantz	2230	349.95	30/30	0.5	0.5	2.0uV*	2.5dB
Kenwood	KR5200	349.95	33/33	0.5	0.5	1.8uV	2.0 dB
Pioneer	SX727	349.95	40/40	0.5	0.5	1.8uV	2.0 dB
Panasonic	SA5800	299.95	27/27	0.5	0.7	1.8uV	1.5 dB
Fisher	301	349.95	45/45 (4 ohms)	0.5	0.8	2.0uV	2.8 dB
Sansui	4000	349.95	45/45	0.8	0.8	1.8uV	1.0 dB

These data were obtained from manufacturer's literature.

*RF input for 30 dB quieting

Home Entertainment Center, Capitol Avenue, Meridian
Mall, Lansing Mall and Westwood Mall, Jackson

shop Knapp's 4 great stores today 10 to 9

HERE AT MARSHALL'S, WE FEEL OUR GOAL IS TO FULFILL ALL THE OBJECTIVES THAT MAKE THE RELATIONSHIP BETWEEN OUR CUSTOMERS AND OURSELVES

Michigan State News, East Lansing, Michigan



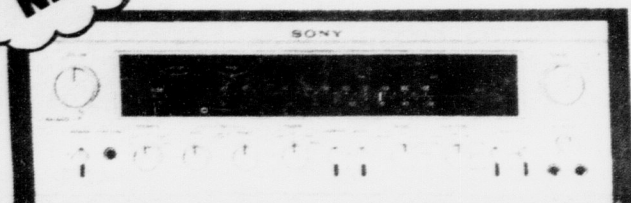
A lot of thought should go into the purchase of a component system. Many factors play a part in determining the value of your selection . . . The quality and extent of service, ease of system expansion (or return if necessary), the availability of technical assistance, and price.

We'll be glad to give you our honest opinion of the equipment that is best suited to your needs and budget. Come on in and talk it over with one of our friendly people. You'll be relieved to get a straight forward comparison of equipment, using realistic specifications and comprehensive demonstrations.

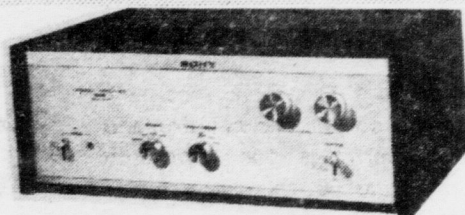
WE WON'T GIVE YOU A BUM STEER!

SONY STEREO HIGH FIDELITY COMPONENTS HAVE CONSISTENTLY BEEN SUBSTANTIATED AS SUPERIOR PERFORMANCE VALUES IN TESTING BY AUDIO PERIODICALS. WE'RE PREPARED TO BACK UP SONY'S QUALITY WITH FACTS, NOT JUST STATEMENTS!

NEW



The STR 7065 AM/FM stereo receiver. Even better performance than before, with a new degree of flexibility making it an even sweeter value. Delivers a FULL 60 watts RMS power Per Channel both channels driven at 8 ohms across the entire 20-20,000 HZ range at less than 0.2% distortion. Specs. GUARANTEED for TWO YEARS!



Sony hasn't forgotten the purest either. The TA3200 stereo power amplifier can fulfil even the most ardent audiophiles requirements. Price \$350.50. We'll let the hi-fi magazine's test reports on the 3200 F speak for us: Copies available. We'll be very glad to compare it against test reports done on competitive products.

We also have the new matching preamplifier from SONY — the TA2000 F. Perfect for the 3200 or any other professional quality power amplifier.

Sony provides a complete array of models for the enthusiast who may not care for FM broadcasts too.

Priced from \$149.50 to \$910.00

With such advanced characteristics as more "PURE" power even in subsonic frequencies, distortion below the measuring capability of most instruments, wider dynamic range, and adaptability to 4 channel stereo, the SONY TA 1150 delivers 30 watts RMS per channel, both channels driven at 8 ohms from 20 - 20,000 H2 at less than two - tenths of 1% distortion. SPECS. GUARANTEED FOR TWO YEARS! It features: Tape monitoring and dubbing for two recorders, turnover switches for tone controls, 4 channel master control capability, switching for two pair of speakers INCLUDING 4 ohms systems and much more.

Sample sony quality — You'll like it!



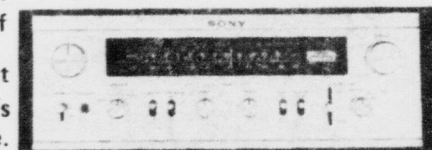
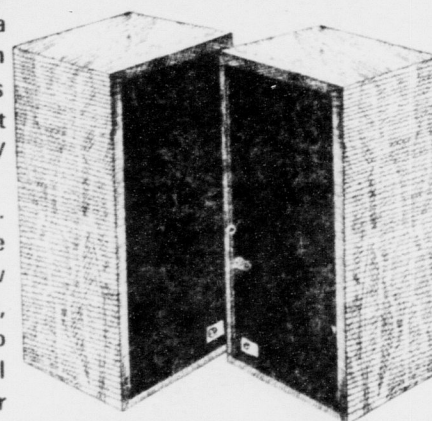
Now is an opportune time to save on an already excellent equipment value. The STR 6065 AM/FM stereo receiver. A top performer by anyone's standards. With our full extended warranty policy. Regular \$429.50

\$359⁰⁰

Naturally 'THE PERFORMER' is based on SONY quality

Our PERFORMER system features the SONY 6045 AM/FM, FM stereo receiver as its control center. For a change you can get into a unit whose quality has been substantiated as a top value. Delivers better than 20 watts RMS per channel over the full 20-20kHz musical range at less than 1/2 of 1% distortion. FM IHF sensitivity is 2.6 uV with very steep quieting. Selectivity is better than 70dB. There's a lot said about bass response in low price systems. We agree that its important, but it doesn't make the entire speaker. The EPI 100 speakers will reproduce low frequencies comparable to any other speaker under \$100, but more important, it covers the whole musical range up to the highest frequencies available on commercial recordings, with a greater degree of accuracy than any other speaker we have tested under \$130. Excellent dispersion. Will handle 50 watts RMS. The real test is in listening (if you know how). BSR's 510 A/X turntable comes complete with a base, dust cover and SHURE M75ECS elliptical magnetic cartridge. It's all mounted and pre-adjusted for optimum performance. Features a dynamically balanced arm and damped cue control.

The PERFORMER comes complete - no extras & with our Buyer Protection Policy.



\$475



Your
BANKAMERICARD
welcome here

CONVENIENT TERMS



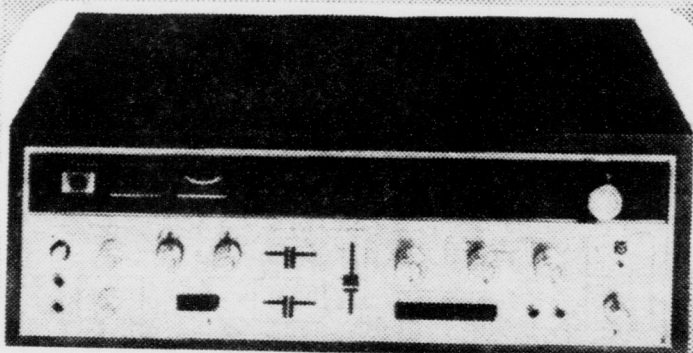
HERE AT MARSHALLS, WE FEEL OUR GOAL IS TO FULFILL ALL THE OBJECTIVES THAT MAKE THE RELATIONSHIP BETWEEN OUR CUSTOMERS AND OURSELVES JUST A LITTLE BIT BETTER THAN OUR COMPETITION. OFFERING A GOOD SELECTION OF QUALITY EQUIPMENT AT FAIR PRICES IS A START, BUT IS NOT THE SOMETHING THAT MAKES US DIFFERENT.

OUR COMPREHENSIVE BUYER PROTECTION POLICY IS THE DIFFERENCE

- ★ The longest System Warranty in this area on ALL component systems. **FREE!**
- 5 years on parts, 3 years on labor INCLUDING ELECTRONICS, TURNTABLES & TAPE DECKS
- ★ The largest electronic service center in central Michigan staffed by seven full-time technicians. You can be **SURE** of service when you buy from Marshalls.
- ★ Our 30 day equipment exchange program. . . lets you change your mind without costing you a cent in depreciation
- ★ Our exclusive 14 day satisfaction guarantee. . . no hassles on refunds
- ★ One year free speaker exchange privileges. . . get the full value from your stereo.

THERE'S MORE ABOUT US THAT MAKES US BETTER. SHOP AROUND, TALK TO THE OTHER GOOD DEALERS THAT OFFER SIMILAR PROGRAMS (HI - FI BUYS, THE STEREO SHOP, THE DISC SHOP) THEN TALK TO US. WE'RE CONVINCED WE'LL BE YOUR LAST STOP. IF WE'RE NOT, THEN WE'LL PROBABLY SEE YOU WHEN YOU WANT TO UPGRADE YOUR SYSTEM. WHATEVER YOU DO, DON'T MAKE A DECISION IN MINUTES THAT YOU COULD HAVE CAUSE TO REGRET FOR YEARS.

THINK QUALITY — THINK RELIABILITY — THINK MARSHALLS - WE'RE "BULLISH" ON SERVICE!



The remarkable SANSUI QR4500 AM/FM stereo - four channel receiver. Decodes any matrix four channel disc, tape, or FM broadcast into thrilling four channel realism, as well as simulate the four channel sound field from two channel material.

FANTASTIC CLOSEOUT PRICE
COMPLETE WITH OUR FULL
EXTENDED WARRANTY
Reg. \$599.95

\$499



Garrard
SL 72B
AUTOMATIC
TURNTABLE

Our extra special price this month on the Garrard SL72B includes the B-2 base, D2 cover and \$34.95 EMPIRE 66E/x magnetic elliptical cartridge.

COMPLETE
\$110

**245 Ann Street
East Lansing**

OPEN WEDNESDAY & THUR. UNTIL 9

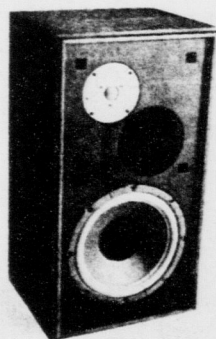
MARSHALL MUSIC CO.

**402 S. Washington
Lansing**

OPEN MONDAY & FRIDAY UNTIL 9



LAYAWAY PLAN



When you're considering a component system in the higher price ranges naturally you want top performance, but don't overlook the ability to upgrade your system in the future. The next step from this point will probably be to speakers which require much more power. Any sacrifice in this area will be regretted later.

PIONEER'S Sx727 AM/FM stereo receiver delivers 37 watts RMS power Per channel both channels driven into 8 ohms over the full musical range of 20 - 20,000 Hz. It does so at typically under 0.05% distortion. (We'll show you the test report) That's more clean power than any competitive unit at its price. The 727 also provides nearly unlimited flexibility and a very sensitive and selective tuner.

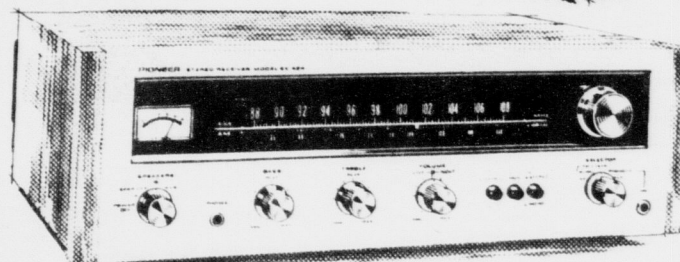
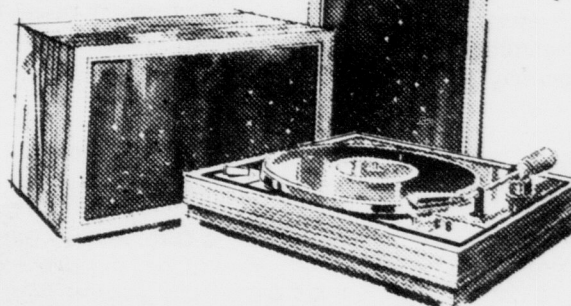
Jensen's model 4 speaker is our choice because it gives smooth natural sound with a "presence" most enthusiasts find to their liking. It features a 10" woofer, 5" midrange and wide - dispersion Sonodome tweeter.

We've chosen the Garrard SL95B turntable because it couples excellent performance, gentle record handling and attractive styling in a reasonably priced package. We mount it in a matching base and cover combination and install the SHURE M91E magnetic elliptical cartridge for optimum performance. Complete with all connecting cables and 50' of speaker wire - no extras. Covered by our Buyer Protection Policy.

\$625

LIST \$761.75

Garrard **JENSEN**



Jensen's Model 2 speaker adds the final touch. A smooth sounding system with a full bass range. 8" woofer 3 1/2" tweeter.

PIONEER

Our "CHALLENGER" system is preselected to give good sound performance to those working with a more limited budget. Pioneer's SX525 AM/FM stereo receiver, like all Pioneers, gives excellent tuner performance. Couple it with an amplifier capable of better than 26 watts RMS power into 8 ohms from 20 - 20,000 Hz and you have a great value.

The Garrard SL72B turntable is our choice because of its gentle record handling. It comes complete with base, cover and 34.95 EMPIRE magnetic elliptical cartridge.

COMPLETE
WITH BUYER
PROTECTION
POLICY

\$390

Two basically different types of speaker elements are in widespread use today, dynamic and electrostatic.

Dynamic speakers consist of a stiff cone drive by a coil of wire acting in a magnetic field.

In an electrostatic speaker the entire sound-radiating surface is acted upon by an electric field. Electrostatic speakers respond quicker and more uniformly to sudden changes in the driving signal because the entire surface is

from every getting out).

Properly designed, they are pretty impressive in their efficiency - to - ease of construction ratio, if you will; but alas, in today's wasteful, throw - away society people think there are an infinite number of watts to burn up and they don't give a fig for efficiency.

The acoustic suspension, or air suspension, speaker system is truly a child of our time. It has no thought to the future as it

of the curves the salesperson will be more than happy to supply.

Sensitivity is often given as decibels below a reference sound pressure level that a standard signal will produce, so the lower the numerical value of the EIA sensitivity rating (math majors may notice there is a minus sign before the figure), the higher the efficiency. Fortunately, many manufacturers state just how much power their product requires to cause permanent damage in an average sized room. If the power rating of your amplifier exceeds the power handling capabilities of your speaker - well, I think you can figure that one out. Just don't come crying to me.

There is no standardized way of measuring transient response because until recently there hasn't been a microphone good enough to be able to ignore its effects when measuring speaker performance. Pictures of the output of the speaker compared to the signal into it are available, though, and obviously the closer they are to each other, the better. Hirsch-Houck reviews of speakers always include such pictures, and these reviews are published by many audio magazines.

Most speakers have impedances of four or eight ohms, which should cause no problem if you never hook up more than one set of speakers to one set of terminals. As for how they sound, I can't hold your hand forever, go to the store and listen to them.

A final word about speaker protection - never use larger speaker fuses than recommended by the maker of the amp or speaker (whichever is smaller). Never use slow - blow fuses for speaker fuses. If you are still worried, and a certain amount of anxiety is healthy, get an assortment and see how small a fuse you can get away with. Always turn the amp off immediately when you blow a fuse, as some are unstable under no-load conditions. Now go blow your eardrums out. See you at the health center.

Speakers

active and there is no heavy voice coil to carry.

This means they have the potential for better high frequency and transient response than dynamic speakers (poor transient response is heard as a lack of clarity or "edge" to the sound). However, the bass response is limited by the small distance the element can travel, so bass is presently the exclusive domain of dynamic speakers.

There are three types of speaker enclosures that are presently popular, all of which aim to extend the bass response. Horn enclosures can be thought of as a megaphone in front of the speakers. It matches the cone of the speaker more efficiently to the air, making efficiencies up to 50 per cent possible. For bass response, you can't touch them.

Unfortunately, you can't lift them either, as an ideal horn would be over 110 feet high. Horns can be folded back on themselves to save space, and one ingenious form uses the walls of the room as the final two edges. Folding makes cabinet construction complicated and very expensive.

Next are the phase-inverter systems, which have no matching device but can double the normal speaker efficiency of 10 per cent at the bass end. They do this by taking the sound from the back of the speaker and delaying it just enough so that it reinforces, rather than cancels, the sound from the front (most other types of enclosures just prevent this back sound

uncaringly accelerates the inevitable heat death of the universe by dissipating hundreds of watts. It is simple, blunt even, holds no truck with carefully cultivated theory; it is violent, and most maddening of all, it works.

To get more bass power from a speaker, you can either increase the area of the cone or increase the distance the cone travels. Two factors limit the matter - the amount of the voice coil in the magnet gap cannot change and the cone is restrained by the manner it is supported.

Air suspension speakers have only a very loose, flexible connection to the metal frame. The support for the cone comes from the spring effect of the air inside the enclosure. The voice coil is made to hang far out both ends of the magnet gap, so the cone can go halfway to Okemos before this becomes a limiting factor. This also accounts for their hideous inefficiency, which can be as low as 0.5 per cent. But all factors considered, they just can't be beaten for most practical situations.

Speaker system parameters you should worry about are frequency response limits and smoothness, efficiency (or sensitivity), power handling ability, transient response, impedance, and how they sound.

Frequency response should be as wide and smooth as possible, and you just check this by inspection

2 speaker types generally used

By R. C. SMITH

Stereo tuner hints open roads to easy listening

By R. C. SMITH

There used to be a time when every stereo system had to have a separate tuner for AM/FM reception. That was before the widespread use of semiconductors.

Now the two major reasons for separating the tuner from the power amplifier - space and the sensitivity of component values to heat from the tubes - no longer warrant the extra expense of duplicating the power supply and chassis intrinsic to the purchase of a tuner.

If you have a sufficiently high opinion of Michigan's program directors to want to listen to their labors, you will probably want a receiver, which is an amplifier with a tuner integrated into it.

Any good receiver today will drift less in frequency than you have any right to expect, thanks to ceramic i.e. filters and phase locked loops. Transistors and ICs have seen to it that the limiting factor in miniturization is probably the knobs on front.

Following are some of the criteria by which tuners are presently judged:

Cross modulation rejection (spurious response rejection): Local strong signals interact with each other and produce spurious signals which interfere with weaker stations. This parameter tells in decibels

what range of signal strengths the tuner can accept without problems. The larger the better.

Selectivity: The FM broadcast band is divided into 200 channels of 200 kHz each. Selectivity is measured as the ratio of the signal on the desired channel to interference from a fully modulated signal two channels away. It

is measured from two channels away because the FCC will not assign two adjacent channels to stations in the same locality. Selectivity is measured in decibels, and the higher the better.

Capture ratio: If two signals are on the same frequency, the capture ratio indicates the ratio of signal strengths needed to pass the stronger signal and reject the weaker. Anything below 4 decibels is very good.

Sensitivity: The Institute of High Fidelity (IHF) rating of sensitivity was adopted in 1958, and is still the most widely used. It is the minimum signal required for what was then considered a listenable output. This standard is about due for a change, but as it is now, 2.0 microvolts or below is excellent. Sensitivities may soon be given for a quoted signal - to

- noise (S/N) ratio, so for the same S/N ratio, the lower figure for sensitivity is better.

Total harmonic distortion: Do not confuse the THD of the tuner section with the THD of the amp. The tuner will have the higher THD and 0.5 per cent of below is pretty good. If the THD is given as

Tuners

a curve against frequency, remember that when a signal figure is given, it is usually the lowest point on the curve.

After blowing all your money on an expensive tuner, you may not be able to afford a directional antenna and a rotor. That's all right, the only FM station in the mid-Michigan area worth listening to is on campus, anyway.

But if you do wish to establish contact with the "real world" out there, one of the less painful ways is to make a folded dipole. Buy some 300 ohm balanced line, which is sold as lead-in wire and should cost you upwards of a whopping five cents a foot.

Cut off a section about four feet long and expose about a half inch of both conductors at both ends. At each end, wrap the two bare wires together. Halfway down this four-foot length, cut one of the conductors and expose this conductor about a half-inch on either side of the cut.

Take the other piece of line and expose both conductors at one end. Connect each of these two to an exposed part of the other piece near the cut. The free end of this second piece goes to your receiver. The cross piece should be stretched tight and parallel

to the ground. A line from the station to be received and the antenna should be perpendicular to this crosspiece.

Making the crosspiece longer will not improve reception. Getting the antenna higher will, as FM is primarily line-of-sight reception. Getting high yourself might not hurt, either.

If you live near tall buildings you may have to move the antenna around until you find a place that gives good reception. In scientific terms, this is known as the Wemby Screw Factor (WSF).

If you live in or near the larger residence hall complexes, good FM reception may not be in the cards for you. Part of your education here at MSU and part of growing up is learning to live with frustrations.

UPGRADE YOUR SYSTEM




The Famous Jensen Model 3 Speaker

Features 10-inch woofer, 3½-inch direct radiating tweeter enclosed in tuned isolation chamber, rear panel balance control, hand-rubbed walnut cabinet. Produces unusual clarity and realism for a speaker system in this price range.

Just \$75

the Stereo Shoppe

543 E. Grand River Ave. (next to Paramount News in East Lansing)
10 to 5:45 Mon. thru Fri., 10 to 5 Sat. / Phone 337-1300

**You'll Love It. . .
or hate it!**



**design
acoustics™**



DESIGN - 12 TM LOUDSPEAKER SYSTEM

Appearance-wise the Design 12 is, to say the least, unusual. But when it comes to sound it has few peers. STEREO REVIEW summed it up in their Jan. 1973 issue. Quote . . . In sum, the D - 12, which looks unlike any other speaker, has an equally unique sound, an open, airy quality that we find most pleasing, and an obvious smoothness and lack of coloration that correlate completely with our measurements. Without a doubt, the design acoustics D - 12 is one of the finest sounding home speaker systems we have ever encountered. Unquote.

Stop in today and hear the Design - 12 loudspeaker system. Available in three finishes and five grill color combinations. Complete information available.

PRICE \$350 to \$375 each dependent on finish

Marshall Music Co., bringing you the most accurate sound reproduction equipment



245 Ann St., E. Lansing
Open Wed. & Thurs. until 9 PM
Your Headquarters For
"STRAIGHT STEREO ANSWERS"
And Quality Service
402 S. Washington, Lansing
Open Mon. & Fri. until 9 PM

Look what's hanging around our place



They're big blue and white tags announcing that TEAC is having the first sale in its history. Every demonstrator in stock is being trimmed by 10-15% during February only. Now you can save up to \$149 on a TEAC professional quality tape deck. They're slightly used, but each carries the exclusive TEAC 2-year warranty. Look for the big blue and white TEAC sale tags hanging around our place now. But hurry! There's only one of each model, and it's first come, first served. Sale ends February 28.

More than you expect for less than you expect

Buying your first stereo component system is a lot like buying your first car. You're not sure how much you want to spend, to be sure you are buying a piece of equipment that will give you the most performance for your investment. Our Starter Stereo System gives you piece of mind that your first step in selecting a stereo is the right step.

The Nikko model 2010 AM/FM stereo receiver is the heart of the Starter system. It was created especially for the person who never owned a top quality stereo system before. It incorporates many professional circuit and control features, powerful enough to drive easily the ALM model 202 extended bass response... the perfect companion receiver.

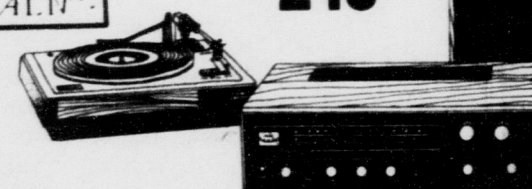
The precision automatic turntable in this Starter system is a full sized highly rated BSR310X total turntable. It has Anti-skate adjust, and a newly designed low mass tone arm.

This is the absolute minimum you must spend to get a component quality in your music system. Magnetic preamp and a Shure magnetic cartridge are included at no extra charge. Performance standards found only in component quality systems.

The list price of the Starter is normally \$314.80 at a department store. However, Hi-Fi Buys and The Disc Shop want to attract you to stereo high fidelity. To demonstrate our sincere desire to enjoy music to the fullest, we are selling the Starter Stereo System for \$249.00. This is a solid savings of \$65.80. Preview it today.



The Starter
\$249



The two most complete hi-fi stores in the world

marantz[®] DEMO SALE

110 AM/FM Stereo Tuner	\$161.10	(reg. \$179.00)
1200 Integrated Amplifier	\$535.50	(reg. \$595.00)
120 AM/FM Stereo Tuner	\$386.10	(reg. \$429.00)
3300 Stereo Preamp Console	\$355.50	(reg. \$395.00)
250 Power Amplifier	\$445.50	(reg. \$495.00)
19 FM Stereo Receiver	\$900	save 25% (reg. \$1200.00)

SAVE 10%



The 4-Channel Intermediate

The Pioneer QX-4000 is the nerve center of this system. It's an AM/FM 4-channel receiver with a clean, sensitive tuner, 20 watts RMS per channel (4 channels), and all the necessary provisions for turntables, tape decks, etc.

We've chosen the ALM 303 loudspeaker to give you the clean, clear sound you will want with 4 channel — all the way across the entire audible range. It's a 3 way speaker system with a 10 inch woofer, 3 - 1/2 inch midrange, and a 3 - 1/2 inch tweeter.

The Dual 1215 S automatic turntable is capable of playing your records smoothly and reliably: its heavy platter turns records quietly at a constant speed. It has a gentle automatic changing mechanism and a convenient cueing control. We include the Grado model FCE cartridge because it picks up and transmits all the sound there is on the record, at a record saving 2 gram tracking force.

\$649



HI-FI BUYS

1101 East Grand River Avenue 337-2310
Across from Colonel Sanders'
open MTT 9 - 5:30 WF 9-9 Sat. 9-5



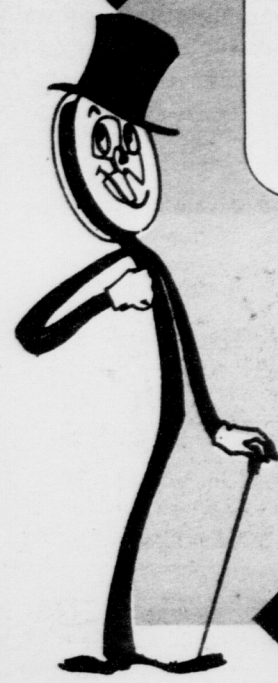
OUR AIM is to sell you the best sounding stereo gear at the lowest price possible, and back our sales with excellent service.

COMPONENT EVALUATION PROGRAM Hi-Fi Buys and The Disc Shop have an exclusive Component Evaluation Program (CEP) that constantly evaluates the sound quality, reliability and value of all stereo components on the market.

EXCLUSIVE 5 YEAR PROTECTION PLAN New stereo component equipment purchased in a system from us is covered by this extraordinary protection plan.

FREE ONE YEAR trial of our new free of charge.

LIBERAL TRADING for the amount toward higher price.

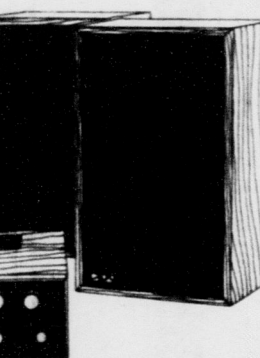


expect. . .
expected.

There is a lot like buying your
want to spend, yet you want
ent that will give you the
Starter Stereo System will
selecting a music system!

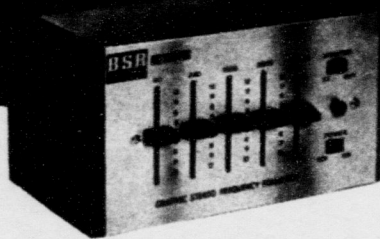
Receiver is the nerve center
ly for the person who has
m before. This receiver
control features and is
model 202 speakers, with
companions to this super

This Starter system is the
able. It has a cueing lever,
mass tone arm
st spend to achieve true
magnetic pre - amplification
at no extra cost. These are
onent quality equipment.
\$14.80 at any other store.
want to attract newcomers
sincere desire to help you
Starter Stereo System for
review it today.



"Once you have used an Equalizer for a
couple of days, you'll wonder how you
ever managed without it. There are few
audio products that can be so legitimately
useful and so darned much fun too."

MICHAEL MARCUS
Audio Editor of Rolling Stone Magazine



Have you ever listened to a record and said to yourself, "how the
(bleep) could that (bleep)ing studio engineer make such a (bleep)ing
bad mixdown? That (bleep)ing guitarist is beautiful, man, and that
(bleep)ing engineer buried the guitar riff under a bunch of other
(bleep)!"

Well, man, now there's a neat little thing that lets you remix the
record after you buy it. The BSR - Metrotec Equalizer has tone
adjustment circuits that work in five different frequency ranges, so
you can boost that guitarist above the level of the other musicians.
Hell, it's your record, why not play it the way you like it?

And that's not all it does. You can use the Equalizer to match your
components to your listening room, make lousy speakers sound pretty
good, make good speakers sound better. You can eliminate tape hiss
and record scratch noise, compensate for wax in your ears, equalize
your recorder for the fancy new tapes, make Melanie sound like
Broderick Crawford or your electric train sound like the real thing.
Even make those old 78's and radio show tapes sound better than
new, and a whole bunch of other fun stuff.

\$99⁹⁵

(\$79⁹⁵ in kit form)

BSR
METROTEC



PIONEER Electro-Voice Garrard SHURE

SAVE OVER 20%

This month you can save over 20% on a very special component
system at Hi - Fi Buys and the Disc Shop. We've teamed up the
renowned Pioneer SA - 600 amplifier (50 watts RMS) with the big
Electro - Voice model 14 speakers (Ten - inch two - way acoustic
suspension system). And with Garrard's top rated SL95B automatic
turntable with a Shure M91E elliptical magnetic cartridge, it's an
unmatched combination.

Pioneer SA - 600	\$199.95
Electro - Voice 14's (pair)	218.00
Garrard SL95B	149.95
Base	6.95
Dust Cover	6.95
Shure M91E	49.95
Total System Value	\$631.75

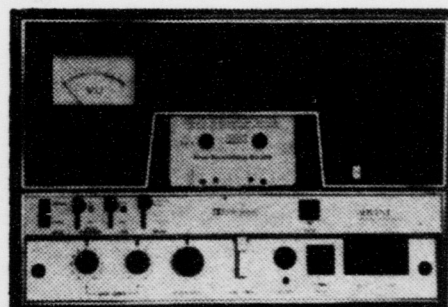
At our special price of \$489.00* not only will you save \$142.75,
but you'll get our exclusive Five Year Protection Plan, too, a
guarantee to keep you satisfied for a long, long time.

\$489⁰⁰ *

While they last, you can
buy Pioneer's matching
tuner the TX - 600 for
\$100.00 in addition to this
system, or if you wish, just
the SA - 600 amplifier (reg.
\$179.95)

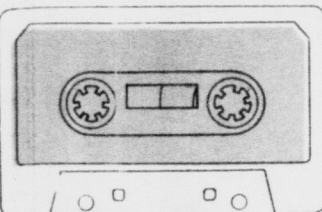
the world are right here in East Lansing.

The
Advent
Model 201
Tape Deck



The Advent Model 201 Tape Deck is, to our way of thinking, the ideal
source for playing music in the home. It combines the important
characteristics of a high - performance open - reel tape recorder with
the convenience of cassettes. The Advent Model 201 will make
recordings that are indistinguishable from most source material,
including the best stereo records and FM broadcasts.

**ADVENT CHROMIUM-DIOXIDE CASSETTES
ON SALE!**



C-60's 2²⁵ ea
C-90's 2⁹⁵ ea

The best time to upgrade
your component system
is before you buy it.

You'll find Dual automatic turntables priced from \$109.50 to \$199.50. That may be more than you
spent on your present turntable, or more than you were intending to spend on your next one.
But think of it this way. It will be a long, long time before you'll need to upgrade your Dual.



Dual 1215 S \$109.50

Dual 1218 \$155.00

Dual 1229 \$199.50

The Disc Shop

323 East Grand River Avenue 351-5380
Next to Jacobson's
open weekdays 9-9 Sat. 9-6

Your
BANKAMERICARD
ask him to

DS

Your
4-Channel
Headquarters

Your
4-Channel
Headquarters

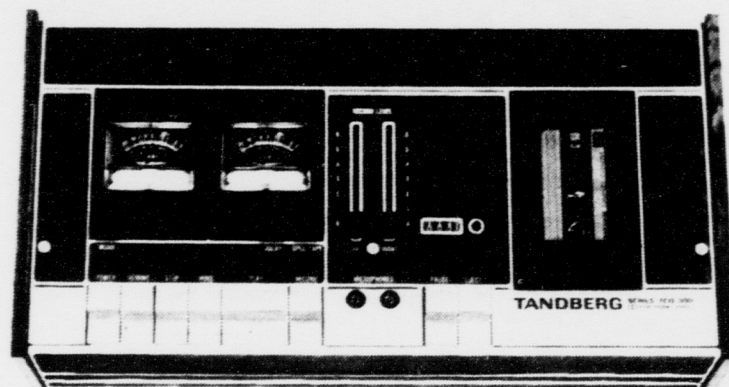
Explore the Wonderful World of TANDBERG



Here's what the experts who've been there report

"The Tandberg TR-1020 is the first electronically tuned receiver we have used which was 'rock stable' . . . interstation-noise muting worked well . . . audio performance of the receiver was flawless. Its compact dimensions (comparable to those of many receivers of one-half to one-third its power) belie its capabilities — the TR-1020 is a real 'powerhouse' . . . we were highly impressed with, and enthusiastic about, the Tandberg TR-1020 . . . it has been designed and built with the care and attention that have given Tandberg its enviable reputation. The TR-1020 is well worth every cent of its price."

Stereo Review, Jan. '73



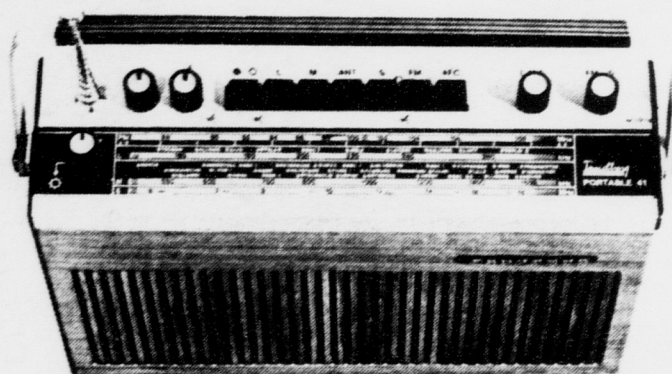
Meet the ultimate cassette deck

The new Tandberg TCD-300 rivals even fine reel-to-reel decks and is unmatched by any other cassette deck. Signal-to-noise ratio is a remarkable 63 dB on chromium dioxide tape! Features built-in Dolby noise reduction system, hot-pressed ferrite heads, three motors, closed loop dual capstan drive, two peak reading meters, electronic controls, linear motion potentiometers and automatic endstop. Come in and listen to the TCD-300. You'll see why we call it the "ultimate" cassette deck.



Two great new reel-to-reel decks

Both are unrivaled in their price ranges. Each features Tandberg crossfield recording technique, four sound heads, linear motion potentiometers, large illuminated peak reading meters, sound-on-sound, and both produce full frequency playback at 3 3/4 ips! The top-of-the-line Tandberg 9000x (left) also features three motors and electronic fingertip controls based on sophisticated logic circuits. The Tandberg 3300x (right) incorporates all the features of the 9000x except the last two and sells for \$250 less. Come compare them at the Stereo Shoppe. You won't want to settle for anything less!



"The best portable radio in the world"

That's what Michael Marcus called the Tandberg TP-41 in *Rolling Stone* last year. It ranked #1 in *Stereo Review's* test of 15 FM radios in July '71. The laboratory report said "only one — the Tandberg — had FM reception that we judged comparable to that of a good home FM receiver." The TP-41 is equipped with a large 5 x 9 inch speaker which gives imposing sound quality throughout the entire high fidelity frequency range and features separate bass and treble controls. Come hear this winner at the Stereo Shoppe! You'll fall in love.

COMPLETE IN-HOUSE SERVICE
FOR EVERYTHING WE SELL

the Stereo Shoppe

ASK ABOUT OUR FIVE WAYS
TO FINANCE YOUR PURCHASES

543 E. Grand River Ave. (next to Paramount News in East Lansing)
10 to 5:45 Mon. thru Fri., 'til 9 Weds., 10 to 5 Sat. / Phone 337-1300

Your
4-Channel
Headquarters

Your
4-Channel
Headquarters

Grammy nominations overlook top musicians

By STEVEN ALLEN

State News Reviewer

Recently the recording industry announced the Grammy Awards nominations to honor the so-called giants of the field.

I say so-called simply as a word of caution. Anyone who might seriously entertain violent action in the wake of witnessing Don McLean pick up half a dozen Grammys should probably skip the TV presentation and read about the entire sad affair the next morning in the newspaper.

Once again the Grammy nominees for record of the year are those that were the lead entries on Bill Drake programmed radio stations across the nation.

Thought you had said bye bye to American Pie for the last time last April? Well think again. It's up for a Grammy and will probably win.

Are you a charter member of the "I'd like to dump Gilbert O'Sullivan on a deserted island and make him alone forever" fan club? Again stay away. He's up for record of the year, too.

If you thought that "Song Sung Blue" was just another mindless Neil Diamond number that would never do any harm, look out also.

The other record of the year nominees are Roberta Flack's "The First Time Ever I Saw Your Face" and Harry Nilsson's "Without You," two tunes which even yours truly might even nominate for the laurels. Maybe they'll surprise me and one of them will win the big award. But I'm not holding my breath.

Since the record of the year award is confined to hit singles, however, one can almost overlook any irregularities here. Singles were never known for quality music anyway. It's when the one reads the album of the year nominees that the bile starts to accumulate.

The nominees are: "American Pie," by Don McLean; "Moods," by Neil Diamond; "Nilsson Schmilsson," by Harry Nilsson; "Concert for Bangladesh," by George Harrison and friends and the Broadway cast version of "Jesus Christ Superstar."

Out of the five nominees, only "Nilsson Schmilsson" is any sort of a legitimate contender.

"American Pie" as an album was an atrocity. It was the hit single plus filler. Since hit singles usually creat hit albums these days, "American Pie" (the album) hit gold. Yet there is not

another song on the album other than the title number which received any kind of popular or critical reception during the year.

Much the same argument applies to "Moods." It's a fine album for Neil Diamond fanatics, but a far cry from being one of the top five albums of the year.

The Broadway cast version of "Jesus Christ Superstar" added nothing more to the original; in fact, it was not nearly as good.

As for "Bangladesh," it was a great event, but the music itself was not that memorable. About the only thing I ever play off all three records of the set is "While My Guitar Gently Weeps," here Harrison and Eric Clapton exchange some truly classic guitar tradeoffs. Otherwise I play "Abbey Road," "All Things Must Pass," and my Dylan albums

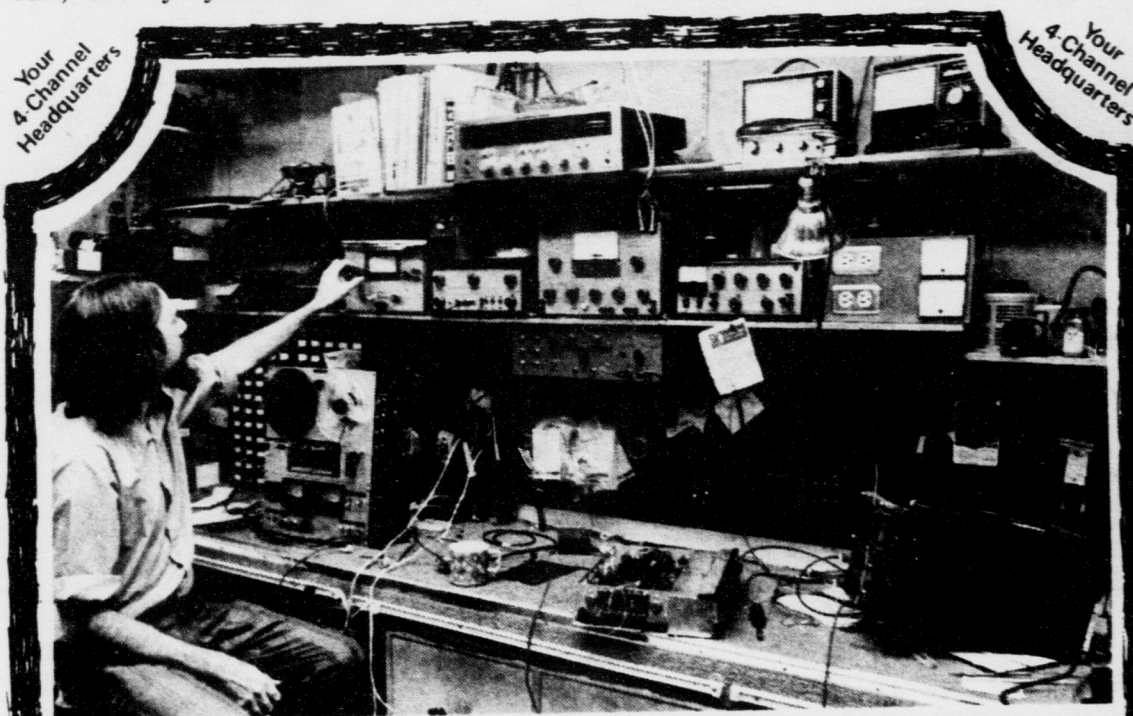
instead of "Bangladesh."

Who should have been nominated? It's going to take a long while to convince me that "Eat A Peach," the last statement left by Duane Allman, was not acknowledged by the recording industry. The Band's "Rock of Ages," Weather Reports's "I Sing the Body Electric," the Mahavishnu Orchestra's "The Inner Mounting Flame," James Taylor's "One Man Dog," Jackson Browne's album — these are the albums which contain the music of 1972 which future generations will listen to. If my grandchildren ever play "American Pie" I'll probably have a cardiac arrest.

The sins of omission are not so bad when one gets to the best new artist category. So what if the recording industry people totally

missed out on the best new artist of last year, Jackson Browne. They still came up with the best of the also rans with America, Harry Chapin, the Eagles, Loggins and Messina and John Prine. Prine is not exactly what I consider a new artist, but he deserves the credit anyway.

The rest of the nominations are just as predictable as those already mentioned. In best male and best rhythm and blues vocal Al Green was completely left out. Sammy Davis, Jr. did get a best male vocal nomination for "Candyman." Somehow the Mahavishnu Orchestra's "Inner Mounting Flame" did get a best instrumental nomination, but the competition will be tough — "Joy," "Outa Space," and "Amazing Grace" are all in there tugging against them.



Complete In-house Service For Everything We Sell

That's an important promise to you — and the Stereo Shoppe keeps it.

Even the most expensive stereo equipment will occasionally be defective when it's unpacked. That's why we check out the equipment you buy at the Stereo Shoppe before we deliver it to you.

And if your Stereo Shoppe purchases develop problems before — or after — our warranty expires, you know that fast, competent, fairly priced service is no farther away than the Stereo Shoppe Service Department.

We're factory authorized to provide you with warranty service for every product we sell. And our non-warranty service carries a 90-day parts and labor guarantee.

Service — one of the best reasons to buy all your stereo gear at the Stereo Shoppe.

the Stereo Shoppe

543 E. Grand River Ave. (next to Paramount News in East Lansing)
10 to 5:45 Mon. thru Fri., 'til 9 Weds., 10 to 5 Sat. / Phone 337-1300

The
biggest
nite spot
in the
state
has the
biggest
&
best
sound
around,
too.

(MAYBE IT'S OUR
SUPER BOSE —
McINTOSH
EXPERIMENTAL
CUSTOM SOUND
SYSTEM THAT
MAKES BIG
GROUPS LIKE
THE ONO BAND &
VINEGAR JOE WANT
TO PLAY HERE.)

THE
BREWERY
MSU WEST

Best loudspeakers emit 'omnidirectional' music

By WINSLOW BURHOE

It has long been known to physicists and audiophiles that the ideal loudspeaker would radiate sound equally in all directions, at all frequencies without any distortion. The usual visual image which is called to mind is that of a small pulsating sphere, perhaps the size of a tennis

ball. As this imaginary ball expands and contracts, it transmits a pressure wave to the air which then expands as a spherical wave of sound. Unlike wave motion in strings or on the surface of water, sound waves are three dimensional.

The term "omnidirectional" applies to the three dimensional

spherical wave pattern this ideal sound source would generate. This term has been abused in recent years by being applied to speakers that do not technically qualify as omnidirectional. Some have been omnidirectional only over a very narrow frequency bandwidth and most are not omnidirectional at any

frequency. As a consequence, there has been little industry or consumer excitement over speakers which have been introduced and labelled "omnidirectional."

It is essential for true and valid omnidirectionality that two conditions be met: (1) Omnidirectionality at all frequencies, and (2)

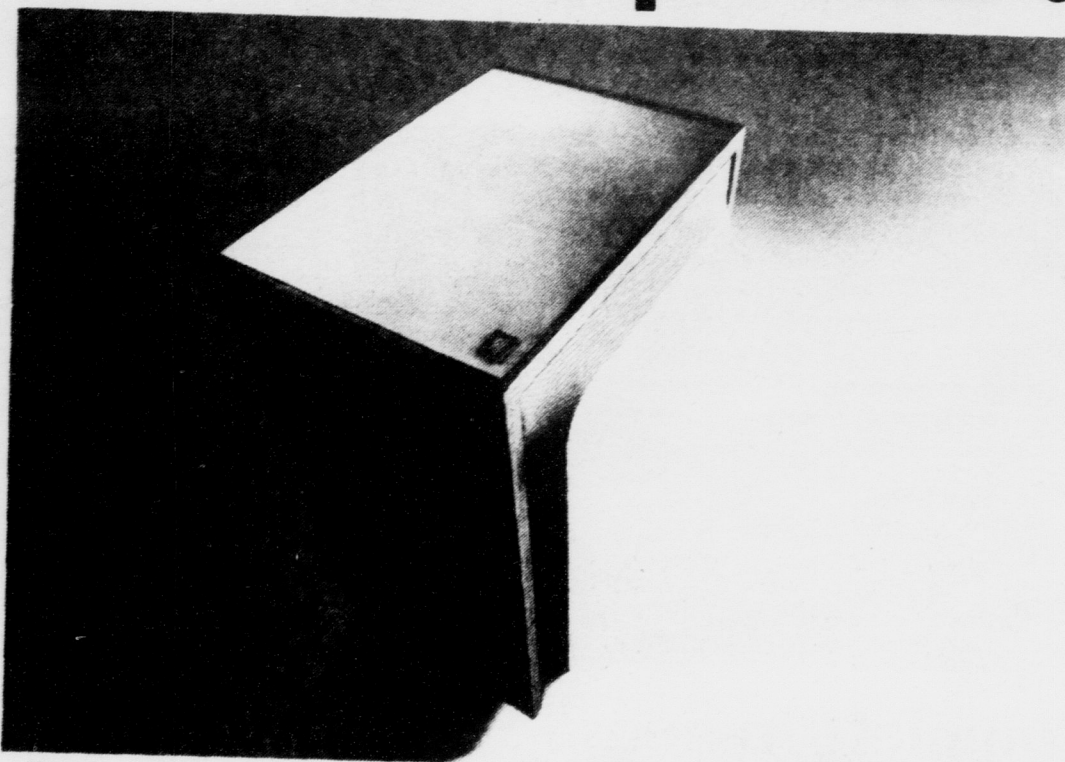
equal energy radiation in all directions — up, down, left, right, forward and backward. Omnidirectionality is not a substitute for other high fidelity specifications; it cannot compensate for poor frequency response or high distortion. It is of no advantage unless applied to wide frequency bandwidth. However, when the traditional high fidelity values of flat frequency response, low distortion, and wide bandwidth are embodied in a truly omnidirectional speaker, a major improvement in sound reproduction is achieved; the close approximation of the mythical ideal speaker, a spherical sound source.

Like all other historical advances in the art of high fidelity, true omnidirectionality provides a greater degree of musical realism and increases the aural perception of the listener. The psycho-acoustic effects of a stereo pair of true spherical sound sources requires many hours of acclimatization, since listening is a learned faculty — whether to speech, music, loudspeakers or nature. Mastery of listening to the more complicated aural inputs from a Spherical Sound Source pair greatly enhances the pleasure of a recorded musical experience. Realism is maximized and the stereo imaging is clear in any listening position.

It has become a well known fact in recent years, even among audio consumers, that a speaker providing the listener with a combination of direct and reverberant sound imparts a greater sense of spaciousness and realism to the listening room. A truly omnidirectional speaker carries this concept many steps further by providing the maximum possible reverberant field effect, i.e., the ratio of reflected to nonreflected sound perceived by the ear. The reflected energy from an omnidirectional speaker arriving at the ear from all directions, milliseconds after the direct input, imparts an ambiance and realism to the reproduced signal unequalled by any direct or partially reflective speaker.

The amount of reverberant field effect of any speaker is determined by the amount of dispersion, especially of mid and high frequency energy, the amount of reflective versus absorbent surfaces in

The only reason you wouldn't want a pair of new JBL Lancer 55's is if you didn't have a floor to put them on.



The new Lancer 55 expresses a classical viewpoint in vivid contemporary terms: a unique three dimensional grill, available in Coffee, Mandarin, or Indigo, is suspended between oiled walnut side panels and topped by smoked glass. It provides accurate, full-bodied sound reproduction at background levels or concert hall volume. The powerful low frequency loudspeaker is capable of recreating the most elusive and complex bass waveforms. The bass has an open, spacious quality characteristic of a live performance. The high frequency direct radiator precisely articulates treble waveforms and the intricate harmonics and overtones that lie above musical fundamentals, adding essential timbre and sparkle to final reproduction.

JBL

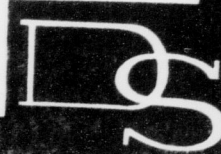
\$276.00 ea.

HI-FI BUYS

1101 E. Grand River Avenue 337-2310
Across from Colonel Sanders'
open MTT 9-5:30 WF 9-9 Sat. 9-5

Disc Shop

323 East Grand River Avenue 351-5380
Next to Jacobson's
open weekdays 9-9 Sat. 9-6



(continued on p. 23)

'Spherical sound' sets alleviate most distortion

(continued from p. 22)

a listening room, and the speaker's position in relation to those reflective surfaces. In order to effectively utilize the maximum effect of a reverberant field in an acceptable listening environment, a speaker must be able to provide the ear with two distinctly different and separately perceived aural inputs; the transient information and the tonal information.

The transient wave form provides the brain with bits of purely digital information. The time of first arrival of the transient at each ear is compared and the difference between these two arrival times provides a directional analysis and the greater part of the stereo image. It is basically the digital components of the transient wave which constitute communication in the form of thuds, clicks, and hisses at the boundaries of syllables in speech. The more precise the transient, the better the stereo image and the cleaner the communication.

The tonal information provides the brain with the actual musical overtones. The ear has the ability to act as a Fourier Analyzer and separate all the complex steady state tonal input into its actual frequency content. This input corresponds to the vowel tones of speech. Even the most complicated harmonic structures and overtones are individually analyzed and then transmitted separately to the proper information processing sections of the brain, where the listener enjoys the reproduced musical signal; or the differentiation of the various vowel sounds in the spoken word, occurs.

As long as a speaker provides transient information that can be accurately identified by the ear, the presence of a reverberant field effect serves to multiply and enhance the tonal input from the original musical signal allowing the brain a longer period to identify and enjoy the complexities of the musical overtones. Therefore, the greater the reverberant field, the greater the psycho-acoustic pleasure becomes.

The lack of accurate transient response from the speaker, or an unusual listening environment that would provide an extreme saturation of reflected sounds (the opposite of an anechoic chamber) could

result in a muddy or blurred sound. The problem of transient information can be overcome with proper speaker design and an unduly high percentage of reflected sound would never be a problem in a normal listening room.

In a closed acoustical environment such as a normal listening room, an additional benefit of a spherical sound source is its ability to produce a field of sound, in much the same way that the earth produces a gravitational field. Because of the reverberant or reflective characteristics of a room and the psycho-acoustic effects of reverberation, the acoustic field produced is equivalent to a uniform field.

In other words, there is no apparent source and no apparent change of loudness in different room positions. Because the stereo effect or image is created by the sound of first arrival, or the transient input, there is no degradation of stereo imaging in these uniform sound fields created by the spherical sound source (transients are readited equally in all directions). An accurate stereo effect is achieved over the entire listening area, provided only

that there is a direct line-of-sight path between each spherical sound source and the listener. The psycho-acoustic effects of reverberation that I described above enable any normal room to closely approximate the effect of a large concert hall more effectively than any other type of transducer. The uniformity of the acoustic fields enables comfortable listening anywhere in the room, even next to one of the spherical sound sources. Listener fatigue is virtually nonexistent.

In order to optimize the acoustic field effects, the room should be divided mentally into equal areas with symmetrical reflective characteristics. The spherical sound sources should be located as close to the center of each such area as possible, in order to maximize the amount of reflection and therefore increase the reverberant field effect occurring in the listening environment. The effects on placement are relatively subtle, however, and truly omnidirectional speakers provide an acceptable level of placement flexibility in most listening rooms.

Conventional bookshelf speakers, whether two-way or three-way, which have the speakers mounted on the same surface in the front of a rectangular box, all have similar directional characteristics. Over some portion of the frequency range of a woofer or tweeter, the drivers operate in a linear fashion whose sound radiation characteristic pattern is hemispherical; that is, the sound radiated off axis as far as 90 degrees in any direction, is equal to the sound radiated straight ahead. (It is a common misconception that speakers radiate sound mostly in the direction they are facing.)

At very low frequencies, the dispersion pattern is even wider; sound is actually radiated backwards from the speaker — this is why speaker placement affects bass response, there being conspicuously more reflected bass when the speaker is in a corner than when it is in the middle of the room or up in the air. At high frequencies, however, all tweeters become directional, that is, the hemispherical radiation pattern narrows to a straight

beam whose diameter is the same as that of the tweeter.

In a two inch tweeter this transition occurs between 6 and 8; in a one inch tweeter it occurs above 13. In general, good dispersion is achieved only if the diameter of the cone is smaller than the wavelength of sound concerned.

By taking four conventional bookshelf speakers with acceptable frequency response, linearity, distortion specifications, and hemispherical dispersion over the entire audio bandwidth; and mounting them with a small enough horizontal separation in a four sided cabinet it is possible to create a speaker that would closely approximate a Spherical Sound Source.

The cost of building a speaker that meets these criteria is high, due to the complexity of the drivers that must be used. However, the most devoted audiophiles and music lovers would find the enjoyment received from the complex aural and psycho-acoustic effects described above well worth the expense.



Mid-Michigan Electronics

presents

"The Beaumont"

featuring

THE DIC LUX 712 R

- ... 140 Watts of RMS Power
- ... 2 year parts and labor warranty
- ... All electronic tuning including three pre-set
- ... Special graphic tone controls

THE MIRACORD 50H MKII

- ... Die-cast platter, both dynamically and statically balanced
- ... Pitch control $\pm 6\%$ with built in strobe disc
- ... Feather light push-button operation

THE ROYAL 6A System

- Actual List Price \$1,237
- ... 12" 3 way system with Danish MidRange and tweeter
- ... 30 - 20,000 HZ
- ... 5 year parts and labor warranty

MME System Special

\$775⁰⁰ complete

with cables & speaker wire

Mid-Michigan Electronics, Inc.

217 Ann Street, East Lansing Phone 517-351-8388



Industry aims at quad quality

By JIM KEEGSTRA

Quadraphonic sound is here and it is here to stay.

But don't buy a four channel system yet. The audio industry hasn't decided which method will be used to achieve the quadraphonic effect.

There are amplifiers and receivers available now which include two or three decoders to translate different quadraphonic methods. But why pay extra money for a built in decoder that may be obsolete in a few years?

If you go into a conscientious, reputable audio store and say you want to buy a quadraphonic system, they will try to talk you out of it. The salesmen will tell you either to buy a good stereo system which can be converted to four channel later, or to come back when the field has settled down to one method.

Also, many people are tempted to buy a complete quadraphonic system for the same price they would have bought stereo. This results in a much poorer quality system, since more equipment is needed for quadraphonic than for stereo.

Stereo reproduces two separate sounds from disc recordings, tape recordings, or FM multiplex radio. In order to hear the two sounds, a two channel amplifier powers at least two separate speakers.

Quadraphonic reproduces four sounds using a four channel amplifier and at least four separate speakers. However, the amount each sound channel is separate from the others depends on

whether the source is radio, records, or tape — and which quadraphonic method was used to put the sound into these sources.

Channel separation is the degree to which a sound on one channel is not heard on another. It is measured in decibels (db), the unit of sound.

FM radio is capable of 45 decibels separation between two channels, quality tape machines of 40 decibels and higher, but stereo records are usually recorded with about 25 to 30 decibel separation.

Records are kept to an average of 25 decibel separation because more than that sounds unreal.

market now, but they must be played on tape machines designed only for four channel. FM discrete broadcasting is illegal. RCA has invented a new form of record groove to give 25 decibel four channel separation, but it is not ready for marketing.

The discrete disc recording would require extremely high quality turntables and pickup cartridges designed exclusively to reproduce discrete. RCA's problem is that even with very low cartridge tracking force, the quadraphonic information in the record grooves is destroyed after five to ten playings.

quadraphonic records for this method. Most other equipment manufacturers are making their matrix decoders capable of handling the SQ system along with their own.

Other major variations are the phase shift matrix and the variable matrix now called regular matrix.

Matrix quadraphonic has the advantage over discrete because it is completely compatible with stereo equipment. All that is needed to convert from stereo to quadraphonic in a home is another two channel amplifier, two additional speakers, and one decoder.

The one decoder handles matrix FM, records, and tape. The matrix decoder also makes regular stereo sound even better. Matrix tapes would play just as long as stereo tapes.

Matrix four channel is carried on two channels by mathematically adding the waveforms of the rear right and left channels to the front right and left channels. However, when the rear channels are separated out again by the decoder, only about 6 decibel difference can be achieved from one channel 4, 18 decibel separation is possible. This corresponds to the speakers diagonally across from each other in a square.

This loss in separation is the only disadvantage of matrix quadraphonic. The variations of matrix are different attempts to make up for this low separation.

One of the methods is to distribute the sounds among the four speakers by their relative loudness to each

other. Some add a logic control in the decoder which will place a loud soloist in the center of the front speakers and drop the accompaniment in volume and place it in the rear speakers.

Matrix decoders without logic sound more natural and avoid the short delay that occurs in shifting the soloist to the front.

The audio trade magazines say 1974 will be the big year for quadraphonic, although the manufacturers thought the same about 1973. It could take from two to five years for a decision to be reached between discrete and matrix. It depends on how stubbornly RCA holds out. If matrix wins one of the variants must be decided upon. Columbia SQ has the best chance.

The tape recording hobbyist will probably use discrete four channel tape machines because of their truer separation. Sony currently makes these in a cost range of \$349 to \$1,795.

Most music listeners will eventually convert to quadraphonic because it is superior to stereo. Speaker placement is not as critical. There is a sense of the sound filling the room, coming at you from all directions.

Probably the matrix quadraphonic will become the standard since it uses present stereo equipment and will make the old stereo recordings sound similar to matrix recordings.

One word of warning. Don't buy a matrix decoder from a cheap store.

Quadraphonic

This is the "ping-pong" effect that was popular when stereo first gained popularity.

However, conventional record grooves can only keep two sounds really separate. FM radio has the technical ability to broadcast four separate channels but it would require about double the station bandwidth now used. Tape machines are built which can handle four separate channels, but twice as much tape is needed than for two channels.

The quadraphonic method that would keep the four channels as separate as two channel stereo is called discrete quadraphonic. RCA and Panasonic are backing this system.

There are discrete prerecorded tapes on the

Even if RCA perfected discrete records, the playback equipment would be very expensive. If discrete FM broadcasting was legalized, it would require its own decoder, different from the record decoder. Present discrete tapes cost about a dollar more than stereo tapes, yet only play for half as long.

For these reasons, the discrete quadraphonic system will probably not become the industry standard. The system that will be settled on will probably be the matrix quadraphonic. However, there are about twelve variations on the matrix method.

The leading one is the Columbia SQ. It is most likely to succeed because Columbia is producing its



Marshall
MUSIC CO.

Join our old Fashioned...

Music by the Pound Sale

SPECIAL PURCHASE

45 RPM RECORDS

\$1 A POUND

AVERAGE: 12 45 R.P.M. RECORDS PER LB.

CHOOSE FROM SCORES OF ORIGINAL TOP HITS - BY THE ORIGINAL TOP ARTISTS FROM THIS GIANT "GOLDEN OLDIES" SELECTION. WHILE SUPPLY LASTS.

SHOP EARLY
GRAB AN ARMFUL AND SAVE!

SPECIAL PURCHASE

STEREO ALBUMS

\$1 A POUND

AVERAGE: 2 ALBUMS PER LB.

NOW'S THE TIME TO BUILD UP YOUR RECORD LIBRARY AT SAVINGS BY THE POUND! CHOOSE FROM A GIANT ASSORTMENT OF MUSIC FROM EVERY CATAGORY. WHILE SUPPLY LASTS
SHOP EARLY
GRAB AN ARMFUL AND SAVE!

ALL STAR ARTIST LP BUYS

FROM COLUMBIA, EPIC & MONUMENT RECORDS

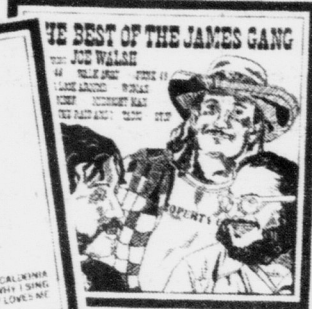
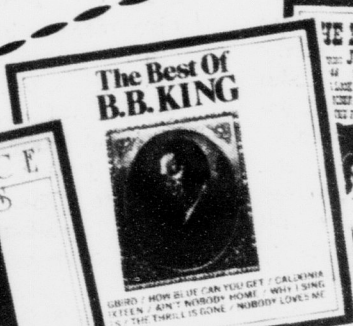
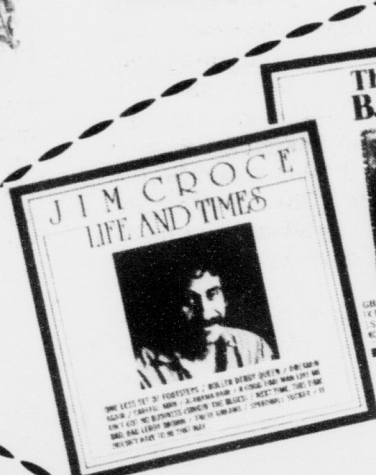
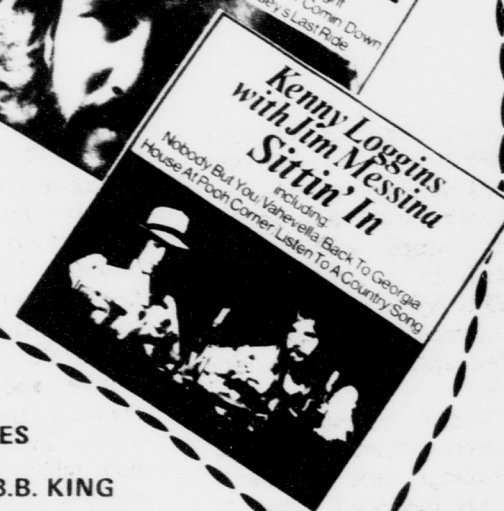
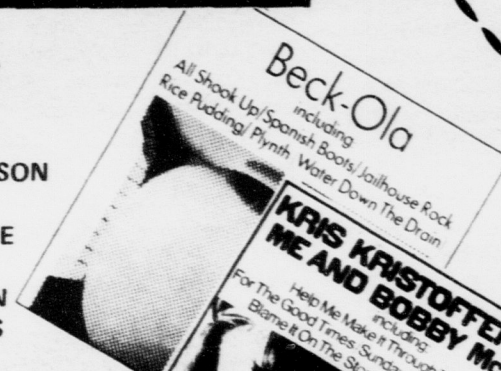


LOGGINS & MESSINA
SITTIN' IN
MILES DAVIS
GREATEST HITS
KRIS KRISTOFFERSON
ME AND BOBBY MCGEE
DON ELLIS BAND
GOES UNDERGROUND
BOB DYLAN
HIGHWAY 61 REVISITED
IT'S A BEAUTIFUL DAY
IT'S A BEAUTIFUL DAY

JEFF BECK
BECK-OLA
MAYNARD FERGUSON
M.F. HORN
FIRESIGN THEATRE
WAITING FOR
THE ELECTRICIAN
FLATT & SCRUGGS
GREATEST HITS

SPECIAL BUY

2 FOR 5⁹⁸
OR \$3.¹⁹ EACH



- JIM CROCE
LIFE AND TIMES
- THE BEST OF B.B. KING
- THE BEST OF
THE JAMES GANG

DUNHILL
RECORDS

YOUR CHOICE **3⁷⁹** EACH



Academy ignores best films



By BILL MECHANIC
State News Reviewer

Every year it is the same. The Academy Award nominations arrive, attracting interest and attention from even the most casual of cinema-goers.

For the purists of the cinema, the people who week after week sit through a veritable barrage of movies attempting to find a film which begins to take the form of art, the nominations verge on the absurd. The one or two films which photograph in a defiant and perceptive way, some recognizable experiences of our lives, are inevitably ignored in the nominations.

For casual filmgoers, those who see only a few films each year, the nominations stir a different kind of debate. The nominated films usually are the biggest box-office attractions — films which permit the greatest number of people to view the film without being aroused either morally or puritantly.

These box-office monsters, which stress as entertainment a night away from all the pressures and tensions of life, allow people to rationalize the time and money spent for admission as a night donated to culture.

This year is no different. Entertaining films which had box-office appeal but

Nominees

Once again the Oscar nominees' names have stirred controversy among the critics over who should have been nominated and among the public over who should win.

AP wirephotos



also contained dubious moral and sexual sequences like "Frenzy" (the story about a necktie-strangler), were ignored, as were films of intellectual but low box-office appeal like "Fat City."

Leading the race to the gold, is no one's surprise, "The Godfather," which is the largest grossing film of all time.

In the best picture of the year category, the battle appears to be shaping up between "The Godfather" and "Cabaret," with "Sounder" as the longshot candidate. To be sure, "The Godfather" was an entertaining film, one in which all the elements of film were tightly and

expertly controlled, and yet the film's greatest impact was in procuring a stream of violent, meaningless gangster movies and portraying its subjects as humane, uncruel beings.

"Cabaret" and "Sounder" were much better representations of film as art. The scope and style of both Morion pictures found them among a small handful of films which made statements about the human condition in entertaining and meaningful ways. Instead of "The Godfather," either of these two films seems a better choice.

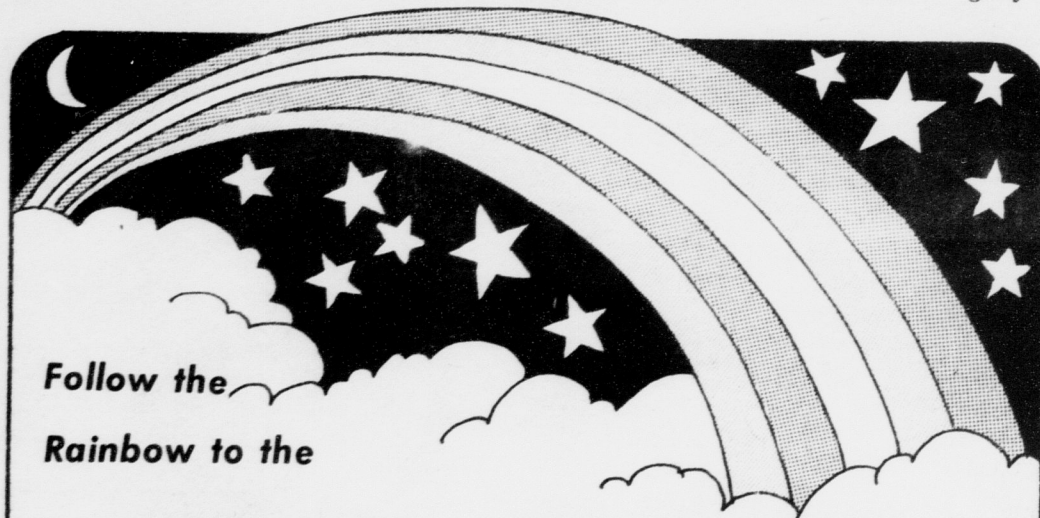
Just as the author of a novel is the force behind its success, so the director of a film is the force behind its success. Francis Ford Coppola, a film school

graduate, learned his lessons well, though Bob Fosse of "Cabaret" accomplished much more in bringing his work to the screen. One of the best musicals of all time, "Cabaret" depends on Fosse's innovative pacing and inventive style much more than "The Godfather" depends on Coppola's.

Jan Troell, director of "The Emigrants," looms as the darkhorse candidate. "The Emigrants" is a superbly wrought film about the forces which led some Swedish people to emigrate to this country. Its only drawback, as both a best film and best director nominee, its lack of commercial success.

The best performance by an actor category this year seems more like a famous

(Continued to page 27)



Follow the
Rainbow to the

RAINBOW TAPE CENTER

All New Releases
8 track and cassette
(Largest selection in the area)

\$4.99

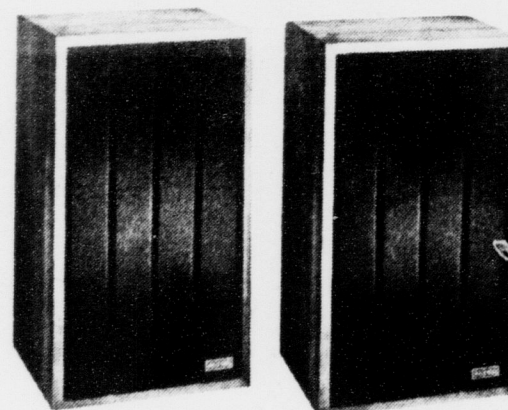
*Complete line of blank tape and accessories

*Car players and quad tapes

*Concord stereo equipment

ACROSS FROM THE UNION Ph. 351-6387

UPGRADE YOUR SYSTEM



Brand New Altec Speaker System

Altec's new 891A bookshelf speaker system is the very best \$125 can buy. It delivers top performance with as little as 12 continuous RMS watts. Features 12-inch woofer in an infinite baffle system and a wide angle dispersion tweeter. Hard to beat at any price! Just \$125

the Stereo
Shoppes

543 E. Grand River Ave. (next to Paramount News in East Lansing)
10 to 5:45 Mon. thru Fri., 'til 9 Weds., 10 to 5 Sat. / Phone 337-1300

Academy

(Continued from page 26)

actor category. Brando, one of the finest actors of the cinema, probably will win the award. Though his portrayal of Don Vito Corleone captured the sympathies of nearly all who saw the film, Brando is capable of so much more, it seems an injustice for him to win the award for such an undemanding role. The same holds true for Laurence Olivier, Michael Caine and Peter O'Toole.

The choice for best performance by an actor should then be Paul Winfield for his work in "Sounder." In a beautifully modulated performance, Winfield provided the screen with an exacting and credible portrayal of a black man trapped in the pressures of the Depression.

The best performance by an actress should go to either Cicely Tyson or Lisa Minnelli for their work in "Sounder" and "Cabaret," respectively. Both films depended on the actresses' performances to achieve any level of greatness, and both actresses responded to the challenge.

Diana Ross in "Lady Sings the Blues" gives a forceful portrayal as Billie Holiday, but suffers from inexperience and a weak script. Liv Ullman in "The Emigrants" has given many better, more perceptive performances in Ingmar Bergman films.

The best supporting actor, through some mismanagement on the part of the nominating Academy, appears headed to Joel Grey for his master of ceremonies role in "Cabaret." By nominating three actors from the same film, "The Godfather," the votes will be split up, giving the award to Grey.

Neither Shelley Winters nor Geraldine Page gave performances worthy of a nomination much less the Oscar itself. The award will probably and deservedly, go to either Jennie Berlin for "Heartbreak Kid" or Susan Tyrell for her floozy role in "Fat City."

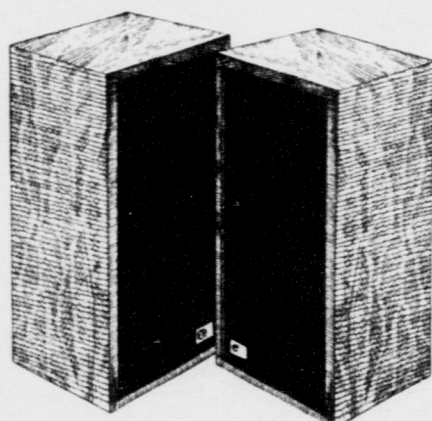
Though the center of interest for most people lies in the actors and actresses, only the director is more important than the writers of the screenplay. Sometimes a director may overcome a weak script but, as a general rule, an actor never can.

The success of "The Godfather," for example, depends on a meaty script for people like Brando, Pacino, Caan and Duvall to work with. The actors' talents do not so much create the success of the films, as do the scripts of Coppola and Mario Puzo. If there is any award that "The Godfather" should win, the best adaptive screenplay is it.

EPI'S LINEAR SOUND YOU HAVE TO HEAR IT TO BELIEVE IT!

We've been recommending EPI speakers for some time now, due to their total achievement of Linear,

Accurate sound reproduction Month by month, more and more critics are enthusiastically echoing their agreement.



Excerpts from AUDIO May, 1970

"EPI is a new name to add to the list of speaker manufacturers. And the Model 100 certainly is a fine opening number."

"Listening tests confirmed the transient - response capability, making percussion sounds come alive and practically omnidirectional. We found we could play the thing louder than one would think possible from its size."

"We were impressed with the quality of sound it produced when fed from a good program source."

THE EPI 100 the Standard AT . . .

\$89 Ea.

Excerpts from AUDIO Feb., 1973

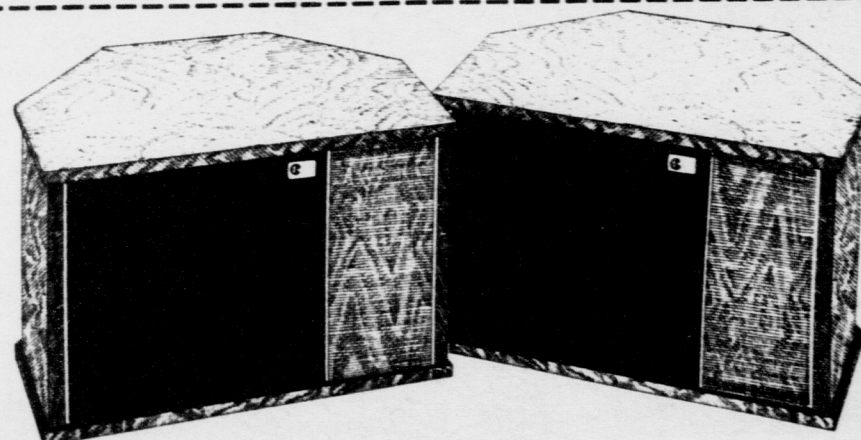
"White noise tests showed very little coloration and in this respect the 601 must be ranked with the best"

"Output was well maintained down to 30HZ and no less than 120 watts was required before frequency doubling became evident at 40HZ."

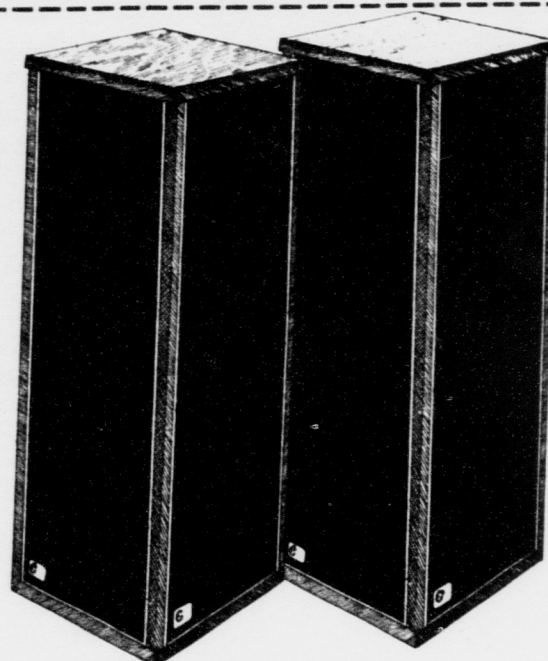
"The first impression was a lack of coloration and a smotherness in overall sound - confirmed later by response curves and white noise tests"

"Overall sound quality was excellent with smooth highs and a tight, well-controlled bass. EPI sound has been criticized in some quarters as "lacking in warmth." We disagree; the warmth should be provided by the program source, not the loudspeaker. Summing up, the EPI 601 can be recommended to the attention of those who want a reasonable size system with high power handling capacity, low coloration, and better than average performance."

THE EPI 601 - VERY LOW DISTORTION WITH NO UNUSUAL POWER REQUIREMENTS.



\$249 Ea.



Excerpts from Stereo Review Feb. 1973.

"The airy open quality of the EPI 400 not only sets it apart from the vast majority of conventional forward - radiating speakers, but in our view earns it a place in the select group of superb speaker systems."

"In our simulated 'live-vs.-recorded' tests, the EPI 400 earned an "A" rating."

"... all four woofers are contributing to the audible output, which is subjectively strong down to about 30HZ."

"A firm stereo image is created independent of the listener's position in the room."

THE EPI 400 UTILIZING 4-6" WOOFERS AND 4-1" TWEETERS IS AN OMNI-DIRECTIONAL SYSTEM WHICH ACTS AS A "SPHERICAL" SOUND SOURCE. PRICE . . .

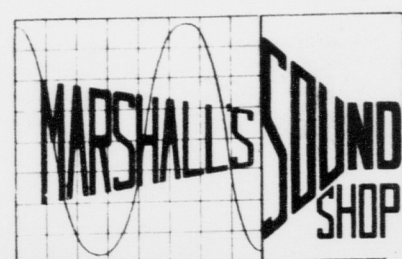
\$389

(If the Mini-towers-Model 400 - sound this good, just think how the towers at \$1000.00 each must sound! On display for your evaluation.)

The real test comes comes in listening, using real life as your basis of comparison.

EPI is refreshingly different from other speakers

PRICED FROM \$55⁰⁰ TO \$1000⁰⁰ EACH



MARSHALL MUSIC COMPANY

245 ANN STREET, E. LANSING

OPEN WEDNESDAY & THURSDAY UNTIL 9 PM

★ ★ ★
402 S. WASHINGTON, LANSING

OPEN MONDAY & FRIDAY UNTIL 9 PM

YOUR HEADQUARTERS FOR "STRAIGHT STEREO ANSWERS" AND QUALITY SERVICE

Taylor's album tops best 10 list

By STEVEN ALLEN
State News Reviewer

No Sights and Sounds tab would be complete without some ego tripping reviewer's list of the 10 best and the 10 worst albums of the past year.

The 10 best list contains those that distinguish themselves in a positive manner. If you have not at least listened to all 10 of these albums yet, make immediate amends. If you have not listened to any of these albums, welcome to 1972:

"One Man Dog," by James Taylor.

Without a doubt this is Not - So - Sweet - Baby - James' best album and quite possibly the best album of the year. It's high points "Don't Let Me Be Lonely Tonight," "Someone" and "Back on the Street Again" rank right up there with the best written songs of the year.

Taylor overcomes his usual lack of material by using a medley of short songs much like the second side of "Abbey Road." Don't be surprised if a lot of other artists do the same thing in the future.

"The Inner Mounting Flame," by the Mahavishnu Orchestra.

This is by far the best jazz album of the year. With his religious approach to his music, John McLaughlin has never sounded better. The perfect complement to McLaughlin is violinist Jerry Goodman. The group can handle both fast moving and smooth gentle numbers with ease.

"Rock of Ages," by the Band.

Just when the Band showed signs that they might be slipping they released the best live album of the year. The group is tight throughout. The addition of a horn section adds a new dimension to the Band's previous works. Usually live albums represent a rehash of musical concepts past. This is the rare exception.

Jackson Browne.

Other artists will be copping songs off this album for some time because Browne is such a superb songwriter. This album proves he also has a smooth voice and no small skill as an arranger. In the year of the songwriter, singer, Browne stood out far above the crowd.

"Nilsson Schmilsson," by Harry Nilsson.

Nilsson can copy other's material; he can do his own. It all comes out sounding fine. Finally with the release of "Schmilsson," the general public began to realize this fact also.

"Eat a Peach," by the Allman Brothers.

This record belongs on the top 10 list for two reasons. The first is a two side number called "Mountain

Jam," which features the best guitar work Duane Allman ever did this side of "Whipping Post." The second is that the band plays a sude without brother Duane and comes off sounding as good as ever. It would be on this ten best list even if Duane were still alive today.

"Superfly," by Curtis Mayfield.

The only really good thing which has come out of the flurry of black films to hit the market in the past year is fine soundtracks. This is the best of the bunch. If only the movies would do as much justice to the black actors and directors as they do to the songwriters and singers.

"I Sing the Body Electric," by Weather Report.

Another jazz album. Weather Report is composed mainly of Miles Davis expatriots who have now become musical giants on their own. The second side of this album, recorded live in Japan, assures it a lasting place in the annals of jazz.

"Garcia," by Jerry Garcia.

With one side of soft, laid-back typical Dead music and another of electronic experimentation, Jerry Garcia proves once again that the Dead may be better live from a total viewpoint, but it's in the studio that

"Harvest" and try to market it as new product. There's nothing here that's never been done better somewhere else before.

"Slade Alive," by Slade.

Any record which attempts a hard rock version of John Sebastian's "Darlin' Be Home Soon" can be all bad. Polydor thinks this group will take the country by storm and well they may; they're already big in England. But as far as I'm concerned, any band in lower Michigan that's been together more than five months can top Slade any day of the week.

"Feedback," by Spirit.

With only two members of the original group left, this bunch has as much business calling themselves Spirit as I have of calling myself Dylan. But they do and they released one of the worst albums of any year. Fortunately they broke up completely after this release.

"Sometime in New York City," by John Lennon and Yoko Ono.

Oh, Yoko, the dream is over. Rolling Stone called this the most disappointing album of 1972. They were being kind.

"Joplin in Concert," by Janis Joplin.

This should never have been released, except for the

Records

they really get their music down. This is one of the few one man efforts released over recent years that I have worn out the grooves on.

"St. Dominic's Preview," by Van Morrison.

This choice is pretty personal. I should have just as easily listed Rod Stewart's "Never a Dull Moment," Joni Mitchell's "For the Roses," or Loggins and Messina's first album. But I've always been a big fan of Van Morrison and this is his best album yet. He combines his serious style of his early solo work with the more upbeat version of his latest efforts and makes it all work.

Now for the 10 worst. These albums got to where they are today because somebody — the artists, the record company or the general buying public — should have known better. But they didn't.

"Long John Silver," by Jefferson Airplane.

They should not have been given clearance to land on this one. It's pure noise all the way through. The high point of this record occurs when the tone arm begins to reject.

"Journey Through the Past," by Neil Young.

Apparently this will be the soundtrack for a film to come out eventually. This is no excuse, still, to include a bunch of take offs from

possible reason that it does explain how Janis ended up the way she did. It lets the listener get an idea of how lost she really was. The music is consistent from start to finish. Bad.

"Chicago," by Chicago.

This has one and only one worthwhile track "A Hit by Verese." Otherwise, what we have here is a complete failure to make anything happen — except cash registers ringing. "Chicago V" represents one of those rare cases where the listener is better off to keep the posters and throw away the album.

"Phoenix," by Grand Funk Railroad.

No ten worst list would be complete without a Grand Funk album. In "Phoenix," Mark Farner and the boys prove they don't need Terry Knight. What they fail to prove is that anyone needs Grand Funk.

"Mardi Gras," by Creedence Clearwater Revival.

The boys backing up John Fogerty in Credence wanted a chance to show their own talents, which they did on this album. The only trouble was that they had very little to show.

"Who Came First," by Peter Dinklage.

Meher Baba may love this, but I'd rather have a good Who album anyway.

SANDY



SANDY DENNY

...EVERY INCH A STAR

**ROLLING
STONE**

called Sandy's new album "a magnificently produced solo album from one of England's most popular singer/songwriters... every cut is graced with instrumental flash and musical taste that will bowl you over."

- ★ The English press has again picked Sandy as one of the top female vocalists!
- ★ She's also performed on the latest Led Zeppelin album!
- ★ She sings the role of The Nurse on the new "Tommy" album!
- ★ Her new album "Sandy" features the single "Listen, Listen" on A&M Records.



Produced by Trevor Lucas
Licensed by Island Records, Ltd.

Record cleaner a must

Your
4-Channel
Headquarters

Your
4-Channel
Headquarters



Now the world's "most expensive"
receivers don't cost a fortune



marantz®

There was a time when the name Marantz on a receiver meant the owner not only knew and appreciated the finest — it also meant he could afford to lay out heavy bread for it.

Nowadays the best is not necessarily the most expensive. That's especially true with Marantz.

Today Marantz maintains its professional yardstick of quality and its one professional "look" — but offers them in a broad price range.

Take the Marantz model 2010 receiver (above) for example. It's a full-featured unit, worthy of the Marantz name and reputation. Yet it's priced at a modest \$199.95.

Now it's true that the Model 2010 is rated at a modest, yet adequate 20 watts continuous RMS. If you demand more power, Marantz can give it to you — as much as you want — but it'll cost a bit more.

The model 2220 will deliver 40 watts for \$269.95.

The model 2230, 60 watts for \$349.95.

The model 2245, 90 watts for \$449.95.

The model 2270, the most powerful receiver Marantz makes at 140 watts, goes for \$549.95.

Your best bet is to use high-efficiency speaker systems, such as the Marantz Imperial line. High-efficiency speakers require very little power, yet perform superbly.

For a convincing demonstration, come to the Stereo Shoppe. You'll walk out owning the best — and you won't have to tell anyone how little it cost unless you want to!

COMPLETE IN-HOUSE SERVICE
FOR EVERYTHING WE SELL

the Stereo Shoppe

MARANTZ COSTS EVEN LESS
WHEN YOU BUY MARANTZ SPEAKERS
AND ELECTRONICS TOGETHER!

Your
4-Channel
Headquarters

543 E. Grand River Ave. (next to Paramount News in East Lansing)
10 to 5:45 Mon. thru Fri., 'til 9 Weds., 10 to 5 Sat. / Phone 337-1300

Your
4-Channel
Headquarters

Record cleaner a must for stereo music buffs

By STEVEN ALLEN

State News Staff Writer

Anyone who puts up a \$1,000 plus on a good, new stereo system will be quite foolish if he does not invest about \$10 more in equipment to keep his records spotless.

An outstanding stereo system allows the listener to hear every sound on the record. That includes every speck of dust, crud and fungus on the grooves of your golden goodies. All this extra, unwanted noise is annoying to say the least; maddening, to say the worst.

One of the best ways to keep records clean is to wash them by hand. This is also, no doubt, the cheapest way. But who wants to take the time to give a record a bath when there are devices for sale which do just as good a job.

The most popular cleaning tool is the Watts Preener. When properly used the preener accumulates the dust and dirt on a record into one nice, neat pile which can then be easily removed. It's easy to use and relatively cheap. In fact, for those who have spent less than \$500 on their stereo system, the Preener is probably ideal.

However, as in every market category, there are your regulars and your premiums. Those who are truly finicky about preserving their records should seriously consider the Discwasher.

The Discwasher does not leave a trace of anything on a record if one follows the directions. Composed of a wooden handled brush with a cavity containing a bottle of cleaning fluid, the Discwasher is the Rolls Royce of record cleaners. It's first class all the way.

Research on the Discwasher began when fungus was found on a bottle of record cleaning fluid. Of course a mean enough fungus can destroy records. So they set themselves to the task.

The Discwasher people pride themselves in the fact that the Discwasher picks provides protection from the microbial threat to records.

To use the Discwasher, one simply applies a small amount of fluid onto the edge of the brush to the record surface for about five seconds and then slowly rock the brush upward. The dry part of the brush picks up everything including the kitchen sink.

If it were not for the elevated price of the Discwasher, every home

should have one. But because of the price, only those who are religious about their records should consider it. The preener is fine for everyone else.

Of course even after a record is cleaned by a preener or a discwasher, more dust and dirt will settle upon it. Another

product called the Dust Bug addresses itself to this problem. The Dust Bug keeps the record clean as it plays. Attached to the cartridge, the Dust Bug cleans the immediate area of the record a split second before the stylus tracks the groove. It also inhibits the buildup of static by

distributing antistatic fluid.

One thing not to buy is the so-called record cleaning cloths. They do more damage than good to the record. In fact anyone owning a record cloth would do well to throw it away; the extra static simply is not worth the dust removal.

Of course if one has a constant free and replaceable supply of records, he does not need any of this record cleaning equipment. He can simply get a new copy when the old one is worn out. For those who are less fortunate, record cleaners provide a viable alternative.

Judy Collins

A Maid of Constant Sorrow
The Golden Apples of The Sun
Judy Collins Number 3
The Judy Collins Concert
Judy Collins Fifth Album
Wildflowers
In My Life
Who Knows Where The Time Goes
Recollections
Whales & Nightingales
Living
The Best of Judy Collins
True Stories and Other Dreams

\$3.29 ea.

Get the entire collections of Judy and Jethro on SALE

Jethro Tull

This Was
Stand Up
Benefit
Aqualung
Thick as a Brick
Living in the Past
(2 record set)

\$3.29 ea.

Disc Shop

NEXT TO JACOBSONS
323 E. Grand River,

351-5380

Open 9-9 weekdays
and 9-6 Saturday

Dual

The World's Finest Automatic Turntables



Dual 1218

Special offer on the most popular turntable Dual has ever made.

The 1218
only \$155.00

Complete with a top quality elliptical
cartridge and WB-12 walnut base.
The normal price of the turntable alone.

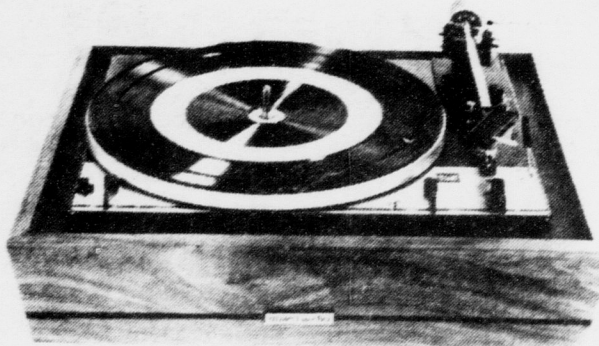
We consider the 1218 as Dual's "best buy." It has many of the precision features of the most expensive model. For example:

The tonearm is mounted in a true gyroscopic gimbal. The motor is a hi-torque /synchronous type and it drives a one piece die-cast platter. Among its many other precision features: Perfect vertical tracking in single-play provided by the Tracking Angle Selector, cue control damped both up and down; variable pitch control.

We'll let High Fidelity Magazine tell you what these features really mean:

"Whether used as a changer or as a manual, the 1218 performed flawlessly for us. Considering this performance plus the superior measurements made in the lab, there seems no doubt that the DUAL 1218 will attract many buyers."

Now if you'd like to be one of those buyers, we'll make it easy for you by including the \$49.95 Empire 66PE/X magnetic elliptical cartridge and walnut base for the regular price of the 1218 alone. \$155.00. Cover \$7.00 add'l.



The 1215S

Complete with WB-12
walnut base FREE!
Plus top quality elliptical cartridge
only \$5.00 additional

The 1215 S offers most of the features found on the more expensive Dual models and gives a level of performance previously unavailable in its price range.

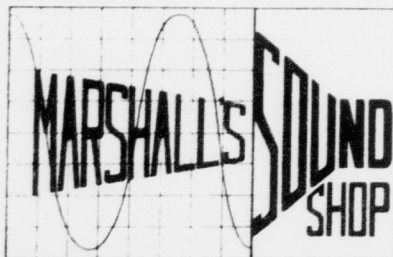
We will mount the 1215S in the WB-12 base and install the \$49.95 Empire 66PE/X cartridge for only \$5.00 more than the price of the 1215S alone. Cover \$10.00 add'l.

\$114⁵⁰

**BOTH MODELS INCLUDE OUR EXCEPTIONAL EXTENDED
WARRANTY FREE! 5 Years on parts and 1 year on labor**



CONVENIENT TERMS
245 ANN STREET
EAST LANSING



LAYAWAY PLAN
402 S. WASHINGTON
LANSING

First records of
year reflect

'same old stuff'

By STEVEN ALLEN
State News Reviewer

If the end of the year is the big rush season for the record industry, the year's beginning must be the drought. Record companies tend to only release during January and February records which would have been lost in the Christmas rush. Here are some of the highlights (and lowlights) of the recent releases:

"Back in '72," by Bob Seger. Palladium MS 2126.

What do you expect from a disc recorded in Warren, Michigan? Not much, that's for sure. What do you receive from a disc recorded in Warren, Michigan? Even less.

Bob Seger was on his way to a national comeback with the release of "Smokin' OPs" last year. This one should return him to obscurity.

It's the same old heavy bass line stuff that Seger has been putting out since his 1966 release of "Heavy Music," except not done as well. And haven't we had enough lines like "Tricky Dick Was mighty slick?"

"GP" by Gram Parsons. Reprise MS 2123.

"GP" is the first solo album by Gram Parsons, former Byrd and Flying Burrito Brother. There is none of that so-called country rock here; every cut is one any country station would be more than happy to play.

Parsons has a pleasant enough voice and no small skill as a songwriter. His upbeat numbers are quite satisfying, especially the album's opening cut "Still Feeling Blue."

The only problem with Parsons' debut is that there is a lack of distinctiveness throughout. He sounds more like the stereotype of a country singer than an artist in his own right.

"Sold for Prevention of Disease Only," by Wilderness Road. Reprise MS 2125.

Want a break from the usual pretension of rock? Then sample Wilderness Road. They're not only a good tight rock group, but they're funny as well — the first group in a long time to do a good satire of rock and roll superstardom.

"The Authentic British Blues" alone is worth the price of the album. Complete with raunchy guitar, wretched harmonica and cockney mumbling, the song features the lyric of the year: "I tried doing coke/ I tried shootin' smack/ When I got to Ovaltine/ I knew I was never comin' back." It's good to see some guys having fun for a change.

Music brings students, profits to bars in area

By GARY OZANICH
State News Staff Writer

Music is big business in the East Lansing area. This is particularly true for the bars. Before the advent of the 18-year-old drinkers, things were relatively stable. The Gables was the bar. They brought in bands which played copy material (well-known material recorded by nationally known bands).

The crowd was not very musically oriented, but was largely interested in drinking, dancing and meeting members of the opposite sex. This, added to the general atmosphere of the bar, quickly stamped out any bit of musical creativity which could have existed. Few musicians can get into doing mediocre imitations of originally mediocre songs.

Lizard's, being a smaller bar with no dance floor, used recorded music as entertainment. The musical selection was generally good and the atmosphere tended to attract the more musically "hip". Then, The Stables opened across the street from the Gables and was largely an imitation of its neighbor, with slightly more atmosphere. Finally, late last winter, the Tin Lizzie went rock and became the Brewery, after it was purchased by new management. It offered largely "I'd give it a 73 — it was fun to dance to" copy bands.

This summer, Lizard's decided to try an experiment by bringing live music into the bar.

Recognizing how musically stagnant the other bars were, the management decided to offer a new option. Its philosophy became "anything but copy band rock and roll". They wanted to become an outlet for creative music, which they felt would be good for sales. Thus, Lizard's became the only place in the immediate area where one could regularly hear blues, country rock, and other neglected forms of music.

They have brought in some good groups and business has been relatively good. The Brewery has also undergone some changes. This summer they underwent an expansion which made them the largest bar in Michigan. With the additional room, they were able to hold a larger crowd thus, allowing them to bring in some fairly big-name groups.

The other bars are suddenly trying a new approach. The Stables turned country rock recently, kicking it off with one of the more mediocre of bands in the area, Dangerous Curves and Diesel Smoke. Some nationally known country and western groups are coming to the bar within the next few months. The Coral Gables has also begun to make some changes. Though they plan to stick largely with copy bands, they have hopes of appealing to a "more mature" audience by presenting artists like Bob Springfield, a folk artist.

The Stables management

also recently opened the Alle-Ey, which has to have one of the most sterile atmospheres of any bar. They are going to bring in largely copy bands, with some plans for nationally known groups, and bluegrass and blues in the afternoon. It's nearly impossible to conceive of a band really "getting down" and playing in such a jaded atmosphere, though Commander Cody will try his best Monday night.

Lizard's is still presenting its non-copy band format, and has plans for some excellent music. The atmosphere and musically-

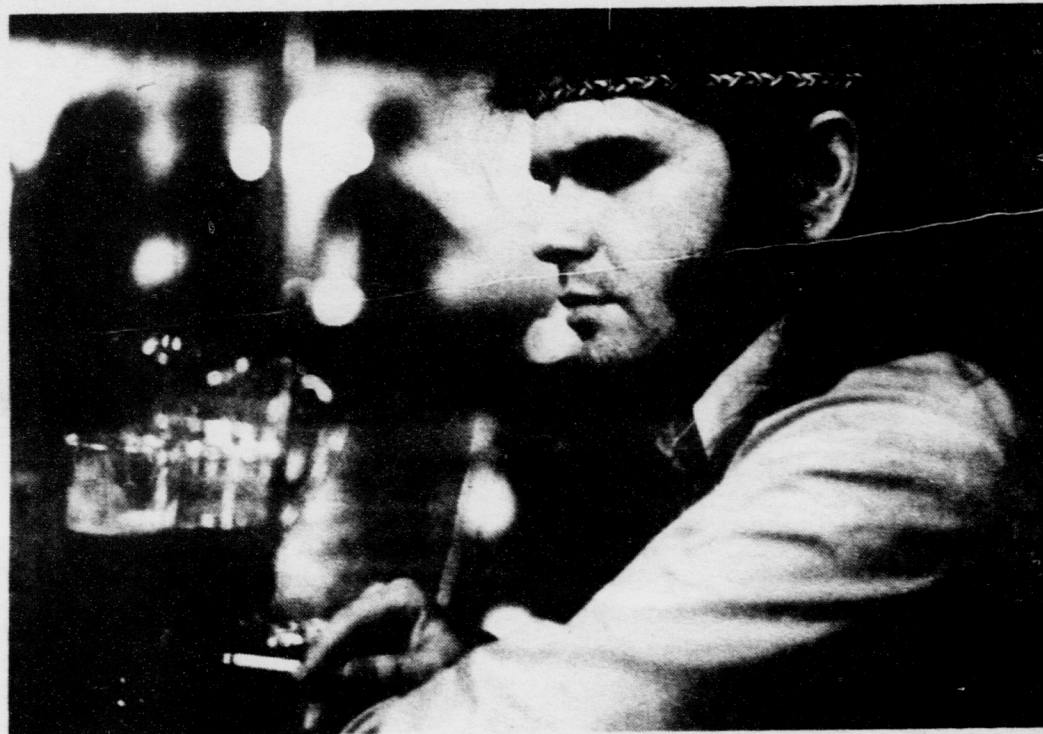
aware management still provide quite a catalyst for creativity.

The management at the Brewery has large scale plans. They hope to make it a "showcase bar" by booking the lesser known national groups, plus groups that are just nationally "breaking."

Coming up, they have Vinegar Joe and Reo Speedwagon, with plans of bringing in some very impressive groups. Elephant's Memory appeared earlier this month. The only possible hassles the management could get into is if they lose the

proper perspective and become a bit too money oriented. A case in point is when they went to Luther Allison's management after they found out he was to play Lizard's and offered him three times more than Lizard's did. He naturally, ended up at the Brewery.

It should also be noted that the sudden interest in presenting better music would not have occurred, if the typical student hadn't become more musically aware. Let's hope there will be a time when we never have to sit through "rock and roll hoochie-coo" in an East Lansing bar again.



Listen to the music

A Lizard's patron sits quietly at the bar while enjoying the sounds of the band. There's been a lot more live music around town since Lizard's added live music last year.

State News photo by Nick Jackson

WKAR marks media month

February is Public Broadcasting Month, and MSU's public radio and television stations are out to "show and tell" the public about their kind of broadcasting.

The February recognition of Michigan's stations was proclaimed by Gov. Milliken, who said public broadcasting "is a mechanism for bridging gaps during a time when personal communications seem harder and harder to achieve."

Eleven public radio and six public television stations, including WKAR-AM and FM and WKAR-TV at MSU, are being honored this month for their service to the people of Michigan. Part of WKAR radio's

celebration of Public Broadcasting Month will be two special programs. One, a four-hour jazz program live from Ann Arbor, featured three of Michigan's top jazz experts, including WKAR's Gary Laehn, last Saturday.

Another special program similar in format to National Public Radio's "All Things Considered" (which is heard each weekday on WKAR), will offer listeners an hour of news and features about Michigan on WKAR-FM at 7 p.m. Wednesday.

The public stations exist without selling advertising time, relying instead on private or corporate contributions or government funds supplied through tax-supported

educational institutions.

Michigan's public radio stations cover almost every county in the state with music, news, public affairs and informational and educational programming — all public service broadcasting without commercial messages.

"As public radio stations, we are not responsible to sponsors, who may have their own point of view," said Richard Estell, general manager of WKAR-AM and FM and chairman of the board of National Public Radio, "but we are responsible to the public, which has many points of view. The responsibility is awesome, but it also provides public radio with a freedom to reflect all aspects of human

behavior.

WKAR programming emphasizes the diversity stressed by Estell. WKAR-AM (870 on the dial) broadcasts daily agricultural reports; hours of music, news and features for the black community daily on the "Takin' Care of Business" show; "Variedades En Espanol" for central Michigan's Spanish-speaking population, and programs of news and public affairs — all this, plus radio documentaries. WKAR-FM 90.5 on the FM dial, carries stereo programs of fine arts, operas, concerts and dramas, with segments of jazz and folk-rock music.

WKAR was Michigan's first educational radio station, licensed on Aug. 18,

1922, and is now one of the nation's most powerful public stations. WKAR-TV has been a full-time public television station since September 1972.

Other major Michigan public stations are: WUOM-FM, University of Michigan; WAUS-FM, Andrews University, Berrien Springs; WDET-FM, Wayne State University, Detroit; WFBE-FM, Flint Board of Education; WGGL-FM, Michigan Technological University, Houghton; WMUK, Western Michigan University, Kalamazoo; WNMR, Northern Michigan University, Marquette; WCMU-FM, Central Michigan University, Mt. Pleasant; WIAA, National Music Camp, Interlochen.

In the market for a camera? Decide on your needs, goals

(continued from page 6)

focusing (as opposed to the nonfocusing lens of an Instamatic), better exposure control and better workmanship and reliability. Some models have automatic exposure control for those of you who don't like to worry or mess with shutter dials and aperture rings.

There are two types of reflex cameras — twin lens and single lens. As the names imply, a twin-lens uses two lenses and a single lens one lens.

In the twin lens, one lens is used as with nonreflex cameras for the actual taking of a picture. The second lens, located just above the taking lens, is the viewing lens. Behind the viewing lens is a simple mirror which reflects the image to the top of the camera onto a groundglass focusing/viewing screen.

To use the camera, you must look down into the viewing screen (which means you usually hold it at about waist level) and turn the focusing knob until the image comes into sharp

focus. The major advantage of this system of focusing is the image is closer to the actual results than what you see through a rangefinder/viewfinder. The major objection to the twin lens is left-to-right reversal of the image on the groundglass, due to the use of a mirror. A major disadvantage occurs when you attempt to photograph something at a distance of less than three feet. The taking lens projects an image on the groundglass that is actually slightly higher than what is being recorded on the film. This optical phenomenon is called parallax. It can be corrected to some extent with special close-up filters, but cannot be completely compensated for.

The single lens, however, does not suffer from the parallax problem. What you see through the viewfinder is exactly what will appear on the film. Though a few models have groundglass focusing like the twin lens (and image reversal), most models have a pentaprism (five-sided optical prism) that corrects the image reversal caused by the mirror.

When viewing through the camera, you aim it at the subject while turning the focusing ring on the lens until the image pops into sharp focus on the groundglass. What happens is the light is reflected off the subject, travels through the lens, bounces off the mirror (reversed) onto a groundglass viewing screen, where it reflects and bounces around the prism and comes out at the eyepiece at the rear, image completely normal.

During the actual exposure, the diaphragm (device inside the lens controlling the amount of light entering) closes down, the mirror flips up, and the shutter is tripped. This all happens in an instant.

Most single lens cameras use interchangeable lenses, allowing you to adapt the camera to meet your needs of the moment. Also, most single lens cameras use 35mm film (a few use 120/220), which means 35mm single lens are fairly compact and can use film of a wide range of emulsions. (An emulsion is the sensitized chemical coating on the film base that produces the actual negative

or slide. Varying the chemical properties of the emulsion by the manufacturer determines the picture producing characteristics of the film black-and-white or color, light sensitivity and whether a negative or positive image. The 35mm film is also relatively cheap, and you can even buy 100 foot rolls and load your own cartridges for even greater savings.

Many of the newer single lens cameras have a light metering system that measures the light level through the lens rather than pointing the meter at the subject for a reading. The advantage of through-the-lens meters is that they read the actual light entering the camera. This is an advantage since the glass in the lenses absorbs small amounts of light, and because each different lens absorbs light somewhat differently. The meters adjust to varying light levels of each lens.

A camera's ability to use different lenses enables it to be very versatile, but how the lenses mount may be a limiting factor. There are three types of lens mounts used on single lens — thread, bayonet and breech-lock.

The thread mount is the simplest in design, using lenses that are simply screwed into the camera body. It is found on more cameras than any other type, but for the most part on the smaller, less versatile, less expensive ones.

The bayonet mount, long considered the sturdiest, uses lenses with three metal flanges on the base which

are inserted into the body and turned until a spring-action lock mechanism catches hold. This mount is the quickest one to use and is found on most of the top-notch cameras, as well as on some intermediately priced ones.

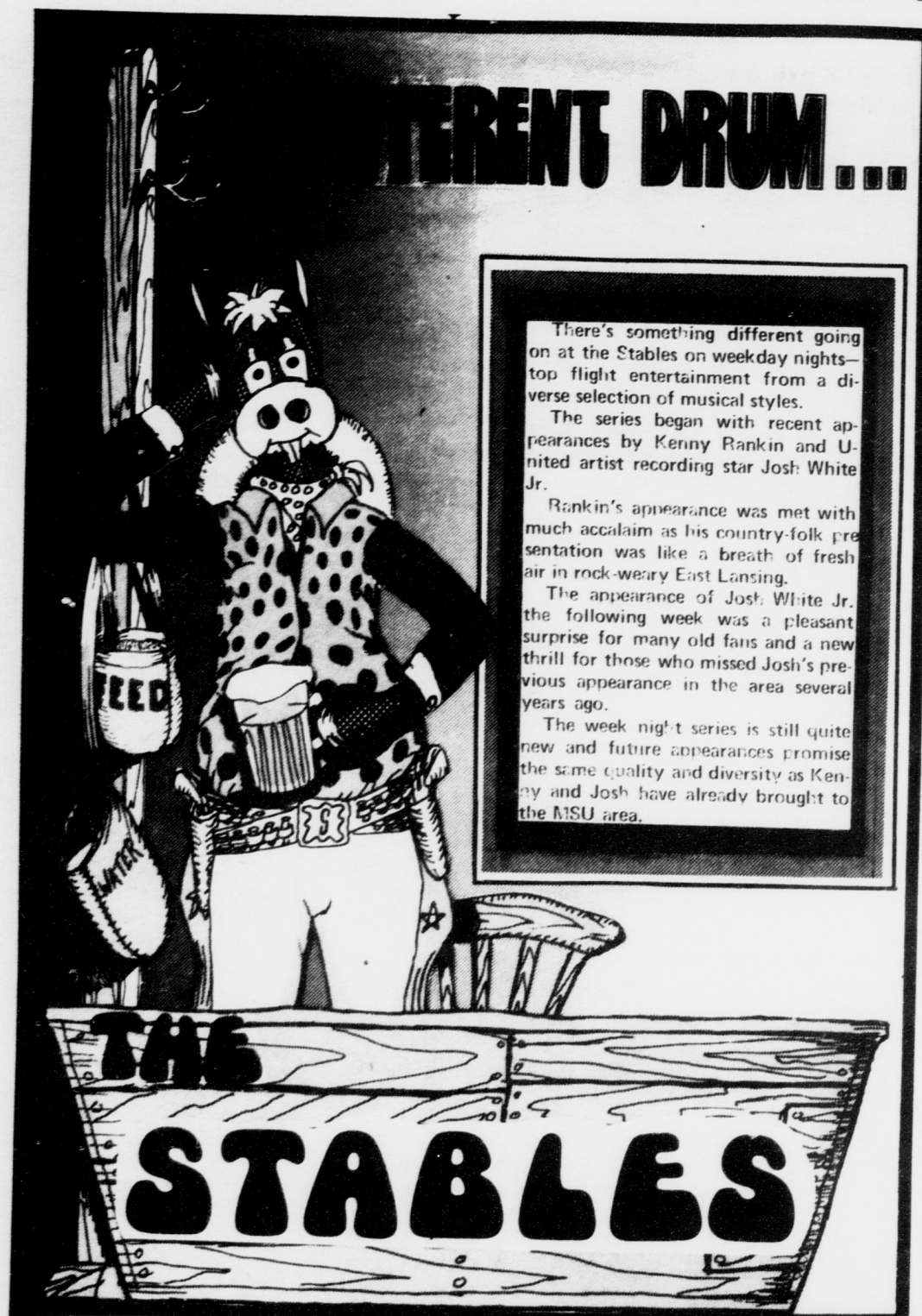
The breech-lock is relatively new and is gaining in popularity. The lenses have small flanges on them like the bayonet ones, but instead of turning the lens you turn a ring on the camera until it stops, locking the lens in place. It closely rivals the bayonet in sturdiness and ease of handling. Though few cameras as yet use this type of mount, one of the best ones made does.

But the best made, most expensive camera may not be the best camera for you. There are hundreds of different cameras, each one emphasizing certain features. The camera that is best for you is the one that has all the features you want. But more importantly, how the camera feels to you is crucial to buying a camera you will be happy with.

Look at as many cameras as possible, pick the ones that have the features you want, and then, pick the one that feels as if it were made for you.

A camera is but a mechanical extension of yourself and your imagination. It will produce pictures only as good as the person using it. So get a camera that seems to become part of you, and then, your imagination is the limit.

INTERFERENT DRUM...



There's something different going on at the Stables on weekday nights—top flight entertainment from a diverse selection of musical styles.

The series began with recent appearances by Kenny Rankin and United artist recording star Josh White Jr.

Rankin's appearance was met with much acclaim as his country-folk presentation was like a breath of fresh air in rock-weary East Lansing.

The appearance of Josh White Jr. the following week was a pleasant surprise for many old fans and a new thrill for those who missed Josh's previous appearance in the area several years ago.

The week night series is still quite new and future appearances promise the same quality and diversity as Kenny and Josh have already brought to the MSU area.

THE STABLES

UPGRADE YOUR SYSTEM



The Dual 1215S Changer/Turntable

Features low-mass tonearm, vernier-adjust counterbalance, anti-skating calibrated separately for conical and elliptical styli, pitch control, feathertouch cueing, hi-torque constant speed motor, 3 3/4 lb. platter, "elevator action" changer spindle. The least you can pay for a truly professional quality changer.

Just \$109.50 less base

the Stereo Shoppe

543 E. Grand River Ave. (next to Paramount News in East Lansing)
10 to 5:45 Mon. thru Fri., til 9 Weds., 10 to 5 Sat. / Phone 337 1300



ANNIVERSARY SALE

GOOD FRI. FEB. 16th THRU SUN. FEB. 18th

CLEARANCE WHILE QUANTITIES LAST NO RAIN CHECKS

SIGHT 'N SOUND SENSATIONS AT OUR EAST LANSING STORE ONLY!

MODERN DESIGN FM / AM / FM
PANASONIC STERO
WITH MATCHING SPEAKERS

BUILT IN FM AND AM ANTENNAS
HEADPHONE JACK
SOLID STATE ENGINEERED
MATCHING SPEAKERS

\$48.



PANASONIC FM / AM / FM
STERO WITH SPEAKERS

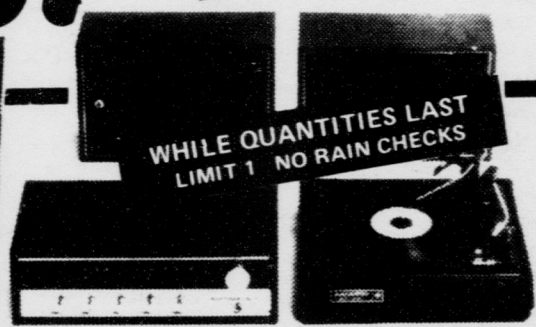
SOLID STATE ENGINEERED
WALNUT WOOD CABINETRY
WITH MATCHING SPEAKERS
PHONO & TAPE DECK HOOK UP
JACKS

\$48.

MASTERWORK COMPLETE
AM / FM STERO SYSTEM
with phonograph

REG. 138.88
ATTRACTIVE DUST COVER
SOLID STATE ENGINEERED
WALNUT CABINETRY

\$88.



MASTERWORKS FM / AM
FM STERO W/8-TRACK

\$59. REG. 88.00

SEPARATE CONTROLS, AFC SWITCH, CHANNEL
SELECTOR LIGHTS



LIMIT ONE WHILE QUANTITIES LAST!
JULIETTE AM CLOCK RADIO
wake to music REG. 14.00

\$7.88

AM / FM STERO CLOCK RADIO
walnut wood cabinet REG. 68.88
LIMIT ONE WHILE QUANTITIES LAST!

\$49.97

QUALITY 12" DIAGONAL
PORTABLE TV SET

\$48.

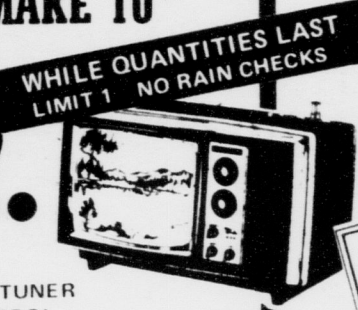
REG. 69.95
EARPHONE JACK
VHF/UHF CHANNELS
LIGHT WEIGHT



FAMOUS MAKE 10"
COLOR TV

\$122.

UHF SOLID STATE TUNER
FINE TUNING CONTROL
PUSH BUTTON COLOR PURIFIER
2 YEAR PICTURE TUBE WARRENTY



L.P. STERO ALBUMS
WARNER BROTHERS STERO ALBUMS

DEEP PURPLE-WHO DO THINK WE ARE? CARLY
SIMON-NO SECRETS-THE BEACH BOYS-HOLLAND
STEAMBOAT-JONI MITCHELL-FOR THE ROSES-
AMERICA-HOME COMING-DUELING BANJOS-
DELIVERANCE

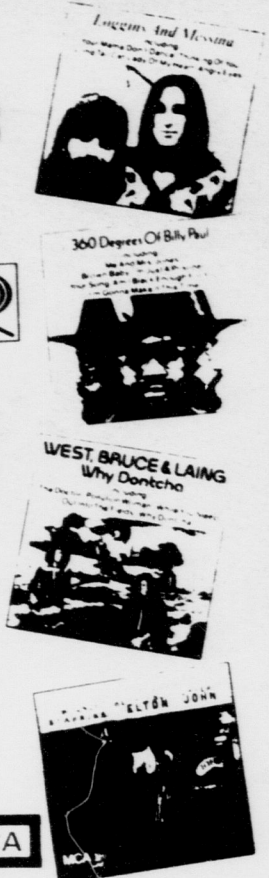
COLUMBIA STERO ALBUMS

BILL PAUL-360
DEGREES
WEST, BRUCE & LAING
-WHY DONTCHA-
LOGGINS AND
MESSINA

MCA STERO

ELTON JOHN-
DON'T SHOOT ME
I'M ONLY THE PIANO
PLAYER

SALE
\$3.44
Reg. \$4.32



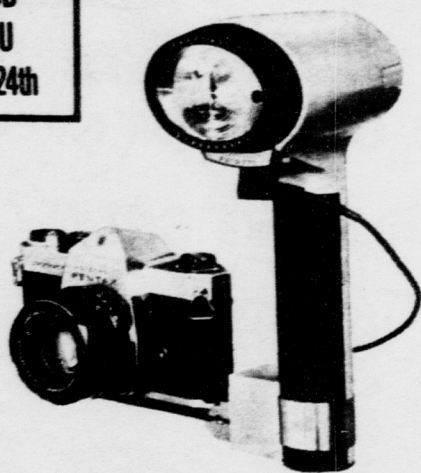
YANKEE

EAST GRAND RIVER EAST OF HAGADORN
THE ITEMS AT OUR EAST LANSING STORE ONLY

The Sight & Sound Thing

THE SOMETHING ELSE SALE

PRICES
GOOD
THRU
Feb. 24th



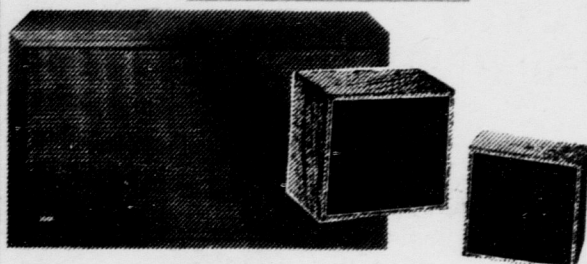
35mm SLR CAMERA SAVINGS

\$302.50 Canon FTB SLR camera
F1 8 50mm lens . . . \$228.
\$249.50 Yashica TLE - SLR camera
F1.7 somm Lens . . . \$139.
\$269.95 Konica Autoreflex A
SLR Camera F1.8 52mm lens \$199.

ELECTRONIC FLASH SAVINGS

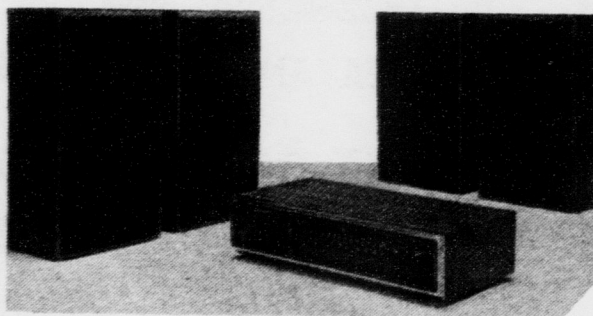
some
1 & 2 of a kind

\$104.95 Bauer - E 200 ultrablitz automatic \$69.88
\$59.50 Hanimex rechargeable \$29.88
\$112.20 Ultrablitz meteor SPGH \$79.88
\$149.50 Honeywell auto. strobonar - 550 \$79.88



FAMOUS MAKE SPEAKER SAVINGS

\$159.95 KLH model 23 12 in. 2 way speaker \$99.00
\$129.95 Fisher XP 66c 12 in. 3 way speaker \$89.00
\$229.95 Fisher XP9C 15 in. 4 way speaker \$149.00
\$139.95 Audio 2 12 in. 3 way speaker \$69.00
\$63.00 AR4X 8 in 2 way speaker \$52.88
\$145.00 Panasonic 10 in. 3 way speaker \$99.00
\$79.95 Famous make 8 in. 3 way speaker \$39.00



LOOK WHAT \$600 BUYS!

Fisher 390 140 watt am/fm stereo receiver \$349.95
2 Fisher 66 12 in. 3 way speakers \$259.90
Fisher 302 X auto changer w/mag. cart. \$139.95
Base & dust cover \$44.90
Total list \$794.70
Leonards Price \$600.00
You save \$194.70

LOOK WHAT \$800 BUYS!

Kenwood 6160 220 watt am/fm stereo receiver \$429.95
Garrard SL95B turntable \$149.50
Shure M91E magnetic cartridge \$49.95
Two AR5 - 3 way speakers . . . \$350.00
Base & dust cover \$13.90
Total list \$993.30
Leonards Price \$800.00
You Save \$193.30

LOOK WHAT \$199 BUYS!

Sanyo 4 channel am/fm stereo receiver
with 4 speakers \$199.95
BSR Auto changer w/base & dust cover \$59.95
Stereo headphones \$20.95
Total list \$280.85
Leonard Price \$199.00
You Save \$81.85

LOOK WHAT \$299 BUYS

Kenwood 505 Compac AM/FM Stereo Receiver
Automatic Turntable, 2 way speaker system,
Magnetic cartridge diamond Stylus, Wood
Cabinetry, Inc./ Dust Cover List \$441.80

Kalimar stereo
HEADPHONES
List \$49.95

\$24⁹⁹

Scotch 150 - 1800
RECORDING TAPE
1800 ft list \$5.55

\$1⁹⁹



LOOK WHAT \$500 BUYS!

Kenwood 4140 80 watt am/fm stereo receiver \$299.95
Fisher 402Y auto changer w/mag. cart \$169.95
Base & dust cover \$44.90
Two Audio II 12 in. 3 way speakers \$279.90
Total List \$794.70
Leonards Price \$500.00
You Save \$294.70

LOOK WHAT \$500 BUYS!

KLH - 32 am/f. 120 watt stereo receiver \$299.95
Two KLH - 23 12 in. 2 way speakers \$319.90
Garrard auto changer w/mag. cart. \$90.00
Deluxe stereo headphones \$49.95
Total List \$759.80
Leonard's Price \$500.00
You save \$259.80

LOOK WHAT \$338 BUYS!

Panasonic 4 channel - 120 watt am/fm
stereo receiver \$299.95
Two 2 way speaker system \$150.00
Garrard auto changer w/mag. cart. \$89.95
Total List \$539.90
Leonard's Price \$338.00
You Save \$201.90

LOOK WHAT \$199 BUYS!

Panasonic 60 Watt AM/FM Stereo Sound System
Automatic turntable, 2 way speaker system,
diamond stylus, wood cabinetry. Includes dust
cover. List \$299.95



FREE
Adjacent ramp
PARKING
Evenings
& All day Sat.

309 N. WASHINGTON AVE

LEONARD

WHOLESALE DISTRIBUTING

LEONARD DOWNTOWN PLAZA

OPEN FRI. & MON.
EVENINGS TILL 9 P.M.
Weekdays & Sat.
9:30 A.M. to 5:30 P.M.