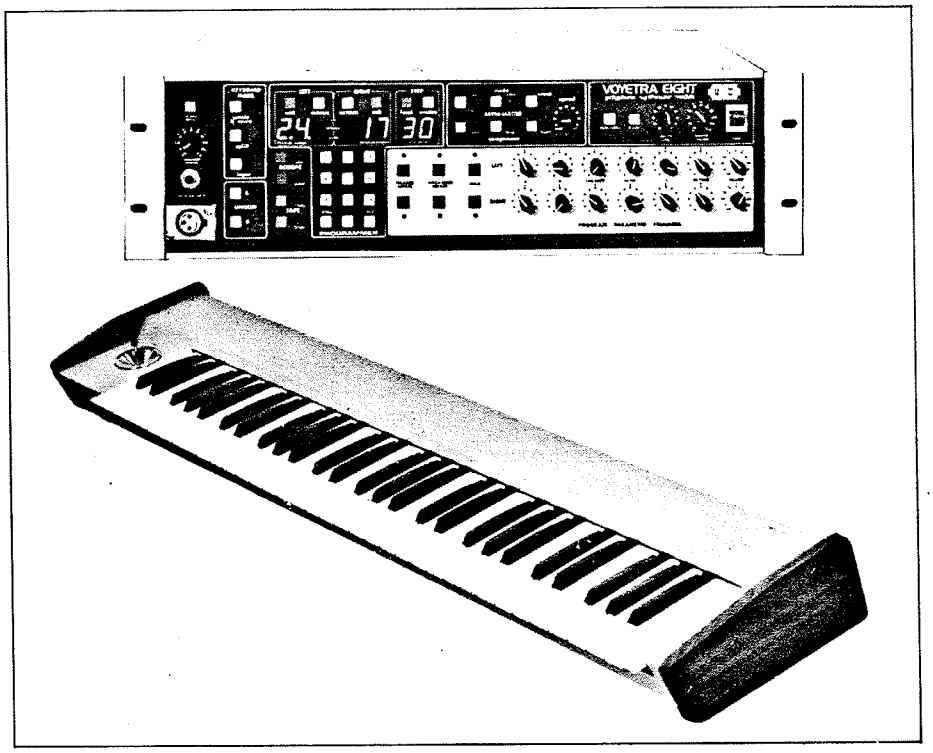
OCTAVE VOYETRA EIGHT & VPK-5 KEYBOARD

MOST SYNTHESIZERS are designed according to the same time-honored plan, with all the tone-generating hardware packed into a single case right behind the keyboard. By the time you make your instrument polyphonic, programmable, and velocityand pressure-sensitive, you may very well be talking about a box that takes two people to carry. But with electronic instruments, there's no need to have all the circuitry in physical proximity. In the design of their Voyetra Eight, Octave-Plateau Electronics took advantage of this fact, creating an unusual package that's sure to have a special appeal for keyboardists who want to streamline the appearance of their stage show. The Voyetra comes in two parts, a keyboard controller (the VPK-5) and a 5¼"x19" rack-mount casing that houses the oscillators and filters and the microprocessor that makes them run. The Voyetra has a lot more capabilities than you'd ever suspect from looking at its unassuming front panel (which consists of three 2-digit LED displays, a numeric keypad, a group of 14 rotary pots, and an assortment of switches and lights) and uncluttered keyboard controller.

As it turns out, the panel's switches and dials and even the keypad itself serve multiple purposes. You can access 11 different front panel configurations by hitting various combinations of switches. This is both the major strength and the major weakness of the system, since it allows Octave to pack in more functions per square inch. Unfortunately, changing the panel function doesn't change the switch labelling, so the only way you can tell what's going on when you've accessed another panel function is either to know the instrument inside and out or to have the manual open to the appropriate page while you're learning. However, what's hidden behind that panel is some mighty fun stuff. There's a polyphonic sequencer, six panels of voice editing "pages," a panel that lets you adjust the velocity sensitivity of the keyboard, another panel that lets you preprogram footswitch functions (what switches they can throw for you, and so on), and yet another panel that lets you set the voice assignment mode and control interfacing (MIDI, external keyboards, external clock sources, and so on). In short, there's a lot more to this box than you might expect.



The Keyboard. The VPK-5 is a 5-octave, C-to-C, velocity- and pressure-sensitive unweighted keyboard that attaches to the Voyetra proper via a 3-pin XLR connector cable. Octave warns that you shouldn't use cables that are longer than 15' because you might start losing signal over longer lengths. A cable that's about six feet long comes with the unit. This isn't really long enough to allow you to play the keyboard as a strap-on, but it's a bit heavy for that anyway, so we'd suggest that you plan to set it on a stand of some sort. The pressure sensitivity is monophonic. What that means is that you can't use the pressure to bring out certain notes of a chord or introduce vibrato to one note within a chord, since the pressure will affect all the notes held down equally. In split mode, leaning on a note on the upper half of the keyboard will affect the pressure parameters of the chord you're holding down on the lower half.

There are a number of keyboard modes that enable you to assign the voices to the keyboard in various ways. These include whole 8 (all eight voices have the same sound across the entire length of the keyboard), split (programmable split point, assigns one sound to the lower portion of the keyboard and the other sound to the upper portion), and layer (assigns two sounds to each key, reducing the total number of voices from eight to four). In split mode, you can assign either of the two sounds to be a unison timbre — all voices assigned to it sound on one key. In layer mode, unfortunately, you can't have one voice be in unison mode and the other polyphonic. A hold function allows you to sustain chords indefinitely or to latch them for the arpeggiator. There are different voice assignment modes that will change the nature of the polyphonic glide and glissando effects. You can adjust the taper of the velocity sensitivity if you like. What this means is that the keyboard will sense 16 different velocities and output 16 different control voltages — but there is no need to have these correspond in a one-to-one fashion unless you want to. You could, for example, have velocities 0-7 output a zero control voltage and velocities 8-15 output a CV of 15, which would give you two distinct timbres depending on how hard you play, with no intermediate timbres between the two. However, the keys stick slightly at the beginning of their travel, which makes it difficult to get fine gradations in the slower attacks. On the positive side, this stiffness gives you some resistance when you play.

Other functions located on the VPK-5 keyboard include an X/Y joystick (pitch-bending and modulation), program advance and backstep switches, and three non-programmable knobs used to adjust the pitch-bend range and pressure sensitivity threshold.

The Voice. The Voyetra has eight voices, each of which contain two VCOs, a VCF (lowpass), a VCA, two ADSRs which can also function as ADRs, and two LFOs. That sounds fairly basic. But really, it's anything but, because of the way the modulation routing works. There are eight modulation sources: DC voltage, LFO 1, LFO 2, LFO 1's square wave (it's independent of the other LFO waveform settings), VCO 1, VCO 2, ADSR 1, and ADSR 2. The DC control voltage (such as from a foot pedal), LFO 1, and LFO 2 are all monophonic modulation sources, meaning there's only one of them for all eight voices — though there are separate LFOs for the left and right programs in split and layer modes, meaning four independent LFOs in all. This is handy if you like really thick sounds. The other modulation sources are polyphonic — there's one *per voice*. These can be routed through any of the controllers (the velocity sensitivity, either direction on the joystick's left-right axis, the pressure sensitivity, the keyboard control voltage, a VCF pedal, noise [!], or ADSR 1 — the latter four replacing velocity if used) in any combination. The controllers determine how much modulation gets applied to the destinations — filter Q, filter cutoff frequency, VCO 1, or VCO 2. The total amount of modulation applied from any controller is programmable.

Here's where it starts getting difficult to keep track of what's going on: There are four modulation banks, set up as separate panel pages. With these you can select up to four modulation sources (one for each mod bank), set their

OCTAVE-PLATEAU VOYETRA

depths, route them through any combination of eight different controllers, and modulate any combination of four different VCO and VCF destinations. There are a lot of possibilities when you start thinking about it. Add to that the fact that the mod banks allow you to choose between the factory preset velocity taper and your own programmed taper, invert the sources, and invert the control signal from the key velocity or keyboard control voltage, and you've got some heavy-duty thinking to do in order to keep track of what's going on in any given patch.

Programs & The Front Panel. The instrument allows you to store 100 patches and 100 "steps." As long as you're on the "normal" page of the front panel (the set of functions that come up when the instrument is turned on), the LEDs will show you two program numbers, both left and right, but when you're using the whole 8 keyboard mode, only the right program can be accessed. Each program holds all the basic patch information for a sound, but doesn't hold information about split and layer combinations, keyboard modes, keyboard voice assignment modes, arpeggiator settings, LFO 1 and 2 left/right syncing, or slave synth CV/gate output assignments. These functions are left for the stepper to memorize. The stepper also has 100 memory positions, which contain, in addition to the above, information about which left and right programs to call up, what octave to play them in, and several other kinds of information. What makes the stepper initially confusing, but very useful, is that you can also store some changes in the basic program parameters in it. The normal page of the front panel has seven knobs (which Octave calls trimmers) for the left program and seven more for the right. Using these, you can change the attack and release times, LFO rate, glide rate, filter cutoff, detuning of oscillators, and program volume. So even if both the left and right programs in a split or layer combination are the same, these trimmers can make them sound wildly different from one another. With 100 steps to choose from, it's possible to have up to 200 variations on a single program stored in the stepper if that's what you want to do.

The LED displays are used to indicate program and step numbers. There's one display for left, one for right, and one for step program positions. To call up a program or step, you have to hit a call or enable switch, which tells the machine that you want to change or edit a left, right, or step program. Periods appear in the appropiate display to indicate that you are calling up a new program number for that particular slot (left, right, step).

You call up different steps and programs by hitting one of the program advance/backstep switches on the keyboard module, selecting numbers on the keypad, or pressing the forward or reverse switches on the bottom of the keypad. We couldn't quite fathom why the forward and reverse switches on the keypad are mounted backwards (forward on the left, reverse on the right) relative to the identical switches on the keyboard module. If you're in some panel page other than the "normal" page, the keypad functions and the meanings of the LED readouts change.

There are six editing pages. These include the four modulation bank pages, a page to adjust the VCOs, and a page to adjust the VCF. Getting into edit pages is easy. You push a switch labelled 'edit' and you're there. The forward and reverse switches on the keypad are then used to step through the circle of edit pages. The LED displays help you distinguish what page you're on (this can be confusing at first, since the pages are numbered 1, 2, A, b, C, and d, and the b and d look like numbers rather than lower case letters, but you'll quickly get used to it). There are a number of functions (ADSR controls, LFO speeds) that can be controlled from the same group of rotary pots on all the mod bank pages, which is convenient and helps you learn the instrument faster.

Each of the 11 panel function pages changes what the panel controls do, right down to what the keypad does. This takes a lot of getting used to. We're told that panel overlays are being prepared to help out, and chances are you're going to need them. At the very least, you'll want to have the owner's manual open all the time until you've gotten to know the instrument intimately. There are a lot of functions you'll miss out on if you don't. Here's a sample of some of the functions that change: In the normal page, the group of 14 rotary pots serve to do various general things that Octave has figured out players like to futz with while performing. (These are the parameters listed above which are stored by the stepper's memory.) The top row of seven pots pertains to the left program when you're in split or layer mode; the bottom pots are for the right program. If you're in whole mode, the top row doesn't have any audible effect, although it is changing the left program nonetheless. You don't hear it because there are no voices assigned to it. When you change to the first editing page, which controls the VCOs, the top row of pots controls VCO 1 and the bottom row is for VCO 2. The pots are used to affect changes in volume, pulse-width modulation depth, initial pulse width, octave, semitone tuning, detuning of VCO 1, and the volume of the noise source. Another group of switches normally used to adjust the arpeggiator become VCO 1 waveform and keyboard tracking controls. As if that weren't hard enough to keep track of, numbers 0-3 of the keypad now select pulse width modulation sources, and the other numbers do nothing. The switches used to set the keyboard assignment modes become controls for sync, VCO 1 VCF bypassing, and linear FM (VCO 2 modulates VCO 1 linearly, creating ring mod effects).

Some of the non-standard functions you'll find on close inspection of the Voyetra include voltage-controlled resonance (Q) on the filter and multiple-function envelope generators that supply conditional or unconditional contours (envelopes that go through their complete cycle once triggered), ADR envelopes (good for percussive effects — the sustain level is omitted except that it is used to set where the transition between decay and release begins), and envelopes that reset to zero when triggered. The keyboard control voltage can also be used to control the decay and release times of the envelopes, so that playing low notes produces longer decay and release times; playing high notes produces short decay and release times. This effect is used to mimic what happens on instruments like the piano. The keyboard velocity sensitivity can be used to control attack time, too. Playing fast produces faster attacks. Other non-typical functions include LFO retriggering (enables you to get effects like vibratos that always start at the same place in the waveform's cycle) and LFO syncing (for synchronizing LFO rates in split and layered programs).

The Sequencer. Holding down the *A*-440 button and the arpeggiator rate switch (a fairly typical two-switch command on this computer-based instrument) gets you into the sequencer page. There are two sequencer channels, A and B. Each channel holds up to 850 events. It takes two events to produce one note — key on, key off. Therefore each channel can hold 425 notes. The two channels can be linked together to produce sequences that are 850 notes long, and you can expand that by hooking your Voyetra up to a personal computer via MIDI (musical instrument digital interface) connectors. Octave is currently developing software for the Apple II plus and IIe and the IBM PC. The instrument should also be compatible with other MIDIed instruments and MIDI sequencer packages such as those put out by Roland and Sequential Circuits. However, since MIDI is still young, we recommend that you try out any combination of MIDI products before you commit to buying them. The Voyetra does suffer from a peculiar form of MIDI incompatibility — it uses three-pin XLR connectors for its MIDI interfacing rather than the five-pin DIN plugs that are the MIDI standard. In order to connect it to other MIDI instruments, you'll need a special cable (available from Octave) with a DIN on one end

and an XLR on the other.

The on-board poly-sequencer will allow you to record at metronome tempos ranging from 20 to 251. You can set the quantizing to 11 possible timing intervals, and if desired, you can get a metronome click track out of a separate back panel jack and set it to beat every quarter note, eighth-note, or sixteenth-note. There are many sequencer modes which allow you to do various things like loop sequences, overdub and "bounce" sequences, play sequencer channel A a set number of times followed by channel B a set number of times, and so on.

The Arpeggiator. The arpeggiator has up, down, up-and-down, and random modes. It can be assigned to either the left or the right half of the keyboard in split mode, or to both. You can assign either LFO 1, LFO 2, or the arpeggiator clock as the arpeggiation rate control for the left arpeggiator, allowing you to have two unsynchronized arpeggios at once if you like. Or you can synchronize one clock to the other, causing the left arpeggiator to reset to its next step every time the right arpeggiator starts a new cycle. You can set the arpeggiators to retrigger every time a new note is hit, and an external clock input can be used if desired. A pause switch is also available for temporarily halting an arpeggio and then starting it again — particularly useful in conjunction with the hold switch for hands-free arpeggios. The main limitation of the arpeggiator is that it will play a maximum of eight notes in whole keyboard mode, four notes in layered mode, and four notes on each half in split mode. Larger arpeggios are very useful musically, but if you don't have enough space in the microprocessor to memorize any more notes, this is a sensible place to draw the line.

Programmable Footswitches. One panel page allows you to program the function of two stereo footswitches (four switches altogether). Each footswitch can be in a single or double strike mode. Single strike puts out a single trigger when you press and release it. Double strike puts out a trigger when you step on the switch and another when you let it up. You can program these switches to control just about any of the switched panel functions. Each footswitch can control two different front panel switches if desired, which makes this an especially powerful feature.

Rear Panel. This includes a whole slew of jacks for: MIDI in/out/thru connections; right/left/mono outputs; three voltage pedal inputs, one of which is programmable from mod bank page D; two programmable stereo footswitches; a forward/reverse footswitch stereo jack; sequencer and arpeggiator clock inputs; CV/gate output for driving an external monophonic synthesizer; cassette interface input and output; and a multi-pin connector for hooking X-and X+ joystick, pressure sensitivity, and pitch-bending controllers together when using multiple Voyetras.

Conclusions. It would be an understatement to say that the Voyetra Eight packs a lot of punch into a little package. It's capable of producing some very vibrant organ, brass, and string sounds and unclassifiable sustained and percussive timbres as well as complex events worthy of larger modular systems. The attention Octave paid to modulation capabilities deserves a lot of praise, even if the complexities of the mod banks take some getting used to. You could spend all your waking hours plotting what to do with the programmable pedals and modulation controllers and still not exhaust all the possibilities. And once you've got the joystick and the pedals programmed for your own playing style, you'll find that the Voyetra is a very expressive instrument. The stepper concept is a very helpful addition, making it possible to set up all your program changes for a concert in advance and access them with the forward and reverse switches on the keyboard module. We were a bit surprised (and disappointed) to see that a highpass or multi-mode filter wasn't included on the instrument. The additional sounds available from such a filter would have put the Voyetra straight into the Dream Machine class. Not so surprising (although again a bit disappointing) was the fact that the keyboard's pressure sensitivity is only monophonic. Still, it's wonderful to see more manufacturers putting touch-sensitive keyboards on their instruments. Having onboard poly-sequencing, layering, programmable splits, dual arpeggiations, and all the rest isn't too bad either.

The one drawback of the system is the fact that it's not terribly user-friendly. The pinpoint LEDs on the front panel aren't bright enough, forcing you to squint in a brightly lighted room to see which switches are on and which are off. And the operation does take a bit of getting used to. If this is your first synthesizer, we'd suggest that you invest in a bottle of aspirin, as you can plan on a headache or two before you get in complete control of the instrument. However, if you're willing to slug it out with the front panel, you'll eventually find that there's more than enough music-making power jammed into this deceptively small machine to keep you happy for a long time. Price is $4,595.00, plus $995.00 for the VPK-5 keyboard. Octave-Plateau Electronics, 51 Main St., Yonkers, NY 10701.