Equipment

The information reported here is obtained from manufacturers and from other sources considered to be reliable. Science *does not assume responsibility for the accuracy of the information. A coupon for use in making inquiries concerning the items listed appears on page 350.*

■ TWO-CHANNEL RECORDER is an integral unit, including amplifiers, on a single chassis. Frequency range is from d-c to beyond 100 cy/sec. Measuring range is 10 mv to 400 v. Input impedance is 10 megohm. Direct ink writing is used. Chart speeds range from 1 to 125 mm/sec. (Brush Instruments, Dept. 595)

■ PRESSURE TRANSDUCER converts pressures in the range of 0 to 1000 lb/in.^{2} into frequency of its electrical output. Frequency is inversely proportional to applied pressure. Conversion to frequency is provided by a vibrating wire stretched between an anchor point and a pressure-sensitive metal diaphragm. The wire is set into motion in a permanent magnetic field by an alternating current through the wire so that frequency is controlled by the resonant frequency of the vibrating wire. (B. J. Electronics, Dept. 616)

■ CONTROLLED-ATMOSPHERE ENCLOSURE is available in transparent plastic or in a combination of steel and plastic. The enclosure is circular in design and has a transparent hemispherical dome. Evacuation can be accomplished by connection to a vacuum pump, or oxygen can be removed by an accessory gas purification system. Round construction permits more than one person to assist in operations being performed in the box. Diameter is 24 in. (Controlled Atmosphere Enclosure Manufacturing Co., Dept. 617)

■ RECORDING MIRROR CAMERA records position-time relationships for events in the hypervelocity range. The camera consists of a cast-aluminum main housing, a rotating mirror, an $f/2.5$ lens, two curved film holders, and an air-turbine drive. The hexagonal mirror rotates at 3000 rev/min, providing writing speed of 4 mm/μsec for a total writing time of 50 μsec. Mirror speed can be reduced. The camera provides a continuous record, the rotating mirror sweeping the image onto curved film strips. Focus remains fixed for a given series of exposures. (Avco, Dept. 620)

■ FREQUENCY STANDARD is a transistorized crystal oscillator with oven control for the range 400 to 2000 cy/sec. The instrument can withstand shock up to 100 *g* or vibration from 0 to 2000 cy/sec at 10 *g*. Frequency stability is ±0.002 percent over a temperature range −55° to +85°C. Output is a square wave. (Dynamics Corp. of America, Dept. 622)

■ SPECTRUM ANALYZER covers frequencies from 10 to 44,000 Mcy/sec with one tuning head. Resolution is continuously variable from 1 to 80 kcy/sec. Sweep width is continuously adjustable up to 70 Mcy/sec to make possible either wide-band observation of the over-all range or high-resolution analysis of small segments of the range. Amplitude scales are calibrated for voltage and power. (Panoramic Radio Products Inc., Dept. 614)

■ RESISTANCE BRIDGE covers the range 1000 to 1.1×10^{14} ohm. Accuracy is better than ±0.2 percent up to 10^{13} ohm. Test potential is continuously variable to 1000 v. A set of nine plug-in laboratory-standard resistors and a battery power supply are furnished. (Mid-Eastern Electronics Inc., Dept. 630)

■ TRANSISTOR CIRCUIT SYNTHESIZER provides four transistor stage panels and a master metering panel. Common-base, common-emitter, and common-collector circuit configurations can be assembled. A floating battery supply powers the assembly. Transistors of p-n-p and n-p-n types can be combined. A curve tracer, incorporated in the metering panel for use with an external oscilloscope, allows visual display of the plot of collector voltage versus collector current. The value of the base current bias can be measured concurrently with the visual display. (National Electronics Laboratory, Inc., Dept. 623)

■ GAS ANALYZER for traces of toxic gases and vapors in air or process streams operates by electrical measurement of the decrease in conductivity of samples caused by removal of ions by the contaminant being measured. Continuous ionization is produced by radioactive material in the measuring ionization chamber. Two chambers are series arms in a Wheatstone bridge. A difference in conductivity is observed when a sample constituent reacts with a reagent in the detector cell to form a particulate dispersion that traps the ions. (Mine Safety Appliance Co., Dept. 625)

■ TEMPERATURE TRANSDUCERS for liquid, air, and surface temperature measurement feature 200-msec response. The temperature-sensitive element is a deposited platinum film. Element resistance is 100 ohm, and resistance/temperature coefficient is 0.0018/°C. Accuracy of the liquid type is ±0.5 percent or 0.1°F in the liquid-oxygen range. Accuracy of the air and surface types is ±0.5 percent from −100° to +500°F and ±1 percent for the −100° to +1200°F range. (Arnoux Corporation, Dept. 628)

JOSHUA STERN
National Bureau of Standards

(*Continued from page 298*)

Similar remarks are apposite to Bateson's provocative and revealing paper. He, too, complains that I have failed to fully quarry the anthropological mine, and sets out to unearth some riches that I neglected. What he discovers are some anthropological—or, shall we say, Batesonian—exports to biology, psychology and epistemology. Such exports fail to impress me, but that is comparatively minor. The difficulty with Bateson's letter is that it can be taken by an unfriendly critic as evidence for the thesis that the status of anthropology does not differ from that of sailing or mining. For it is well known that problems of, and discoveries by, miners and sailors have resulted in advances of physics. Whether Bateson would take this as denigration of anthropology or elevation of mining is unknown to me. I do know that his letter was motivated by the conviction that anthropologists have discovered many interesting and important truths about men and their cultural activities. I share Bateson's convictions. Nevertheless, I doubt whether anthropological findings have thus far led to comprehensive theories. And my doubts on that score were not allayed by Bateson's otherwise instructive paper.

Hansen impresses me as a zealous knight who is prepared to break many a lance for the discipline to which he has sworn fealty. Unfortunately, he either has never taken, or has forgotten, his vows of chivalry, and thus, alone among my critics, Hansen finds nothing in my paper that he can bless. Perhaps this judgment is too strong. Except for the unfounded suggestion that I criticize learning theory for failing to supply us with teleological explanations, he neglects to comment upon my views about recent anthropological employment of learning theory. His silence on the score may indicate consent. In point of fact, his reticence is puzzling, but not as much as some of his explicit inferences.

Thus, I do not know how Hansen concluded that I wanted anthropologists to restrict themselves to historical statements. It is well known that explanations in history are given without the aid of any special class of historical theories, and my hint was that similar conditions may some day obtain in anthropology. Incidentally, Hansen more or less agrees with this point, when he notes that anthropologists are "doing their utmost to reveal the wonders of social phenomena," and that they will attempt to do so even if it means borrowing theories from other disciplines. But this means the autonomy of anthropology is not a necessary condition for its success. That, among other things, was the point of the analogy between anthropology and history, an analogy that aroused the ire of my critic and led him to forget parts of my paper. Had I wanted to give an air of preten-

tious novelty to my remarks, I would never have quoted Maitland.

Hansen insists that functionalists are well aware of my criticisms, and therefore seems to be disputing not the truth, but the novelty of my remarks. I will bypass the problem of originality, and simply take Hansen's letter as a datum against his own view. For he fails to understand, much less agree with, my critical observations. Thus, I was not concerned with the danger of teleology, but with the dispensability of certain locutions, and with the conditions that must be satisfied by any explanation, teleological or otherwise. It was the failure of functionalists to produce bonafide explanations, not their employment of a terminology, that perturbed me.

I was equally disturbed about the empirical status of some statements sponsored by anthropologists. I reported my findings, and to controvert them, Hansen administers a methodical spanking. To answer my charge that some functionalistic propositions are banal, he observes that most scientific theories are based on banal foundations. "In fact," he continues, "one indication of the soundness of a scientific theory is the simplicity of its basis." I surmise that even Hansen, in his more charitable moments, will find a difference between banality and simplicity, and will discover little that is banal about the foundations of, let us say, quantum electrodynamics. At that time, I am sure he will also find it difficult to specify a sense for the phrase "foundation of a theory" and to find a method for measuring simplicity.

To meet my claim that some statements are false, and others tautologous, Hansen points to the self-corrective nature of scientific inquiry. False statements can be replaced by more warranted ones, and tautologies, when incorporated within theories, some of whose premises are true, but not logically true, can lead to fruitful empirical results. But the possibility of self-correction is no proof that the correction called for is not in order. Or perhaps Hansen merely set out to show that the presence of faulty theories is no proof of the demise of a discipline. But I can assure him that I never set out to bury anthropology. I only questioned some currently employed theories, and for that Hansen and others seem ready to banish me as a nonscientific infidel.

SIDNEY MORGENBESSER
Department of Philosophy,
Columbia University, New York

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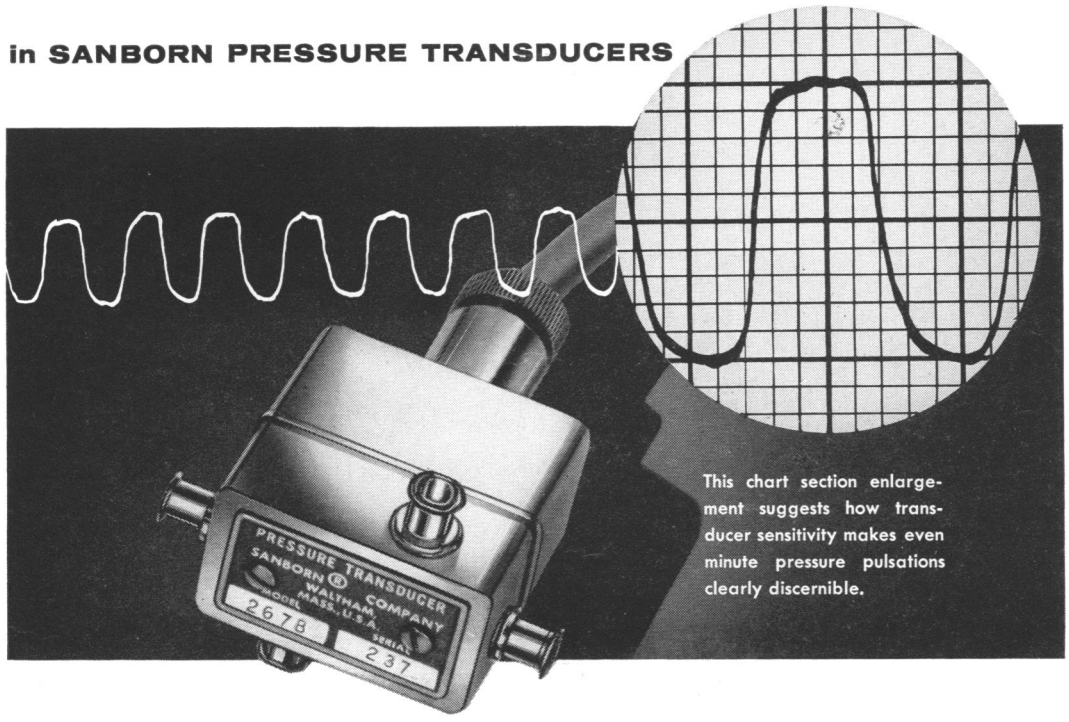

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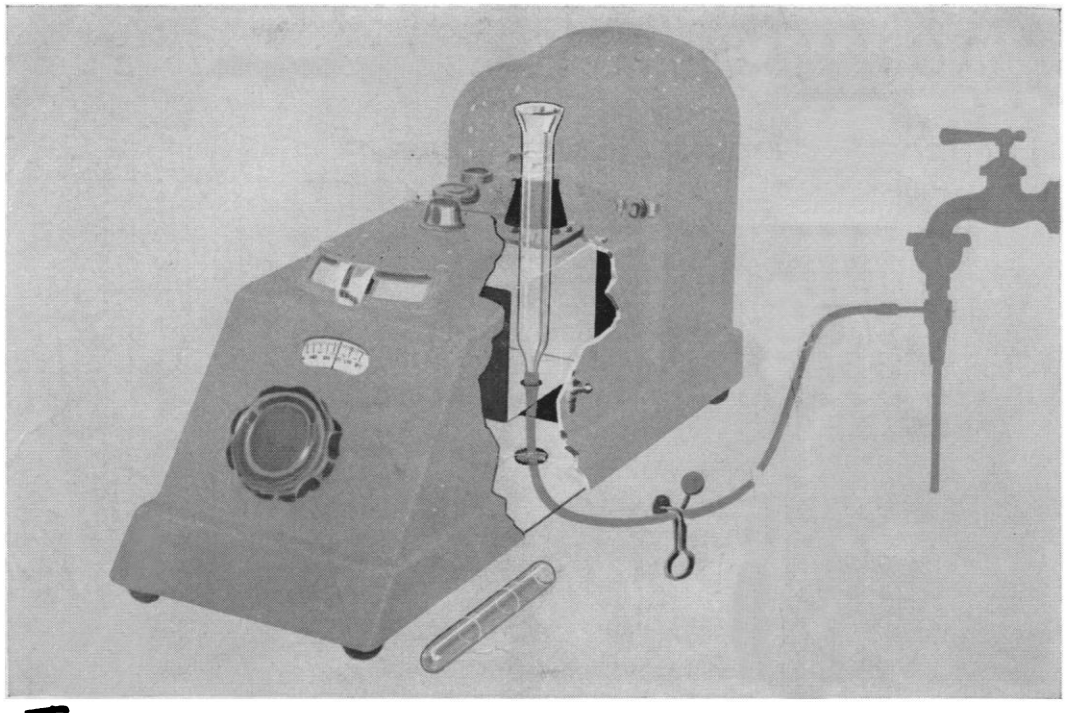

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